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The North Pickering Project

COMMUNITY
DESIGN
new towns
reviewed



Ministry of
Housing

Ontario

plantown
consultants limited

BACKGROUND
PAPER 2

This report was prepared as background material in the planning of the North Pickering Planning Area and does not necessarily constitute a recommendation of the Ministry of Housing nor approval of the Government of Ontario.

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**BACKGROUND
PAPER**
on:
**COMMUNITY
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JUNE 1974

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INTRODUCTION

INTRODUCTION

It is the intention of this background paper to illustrate and comment upon new town design in Great Britain, Scandinavia, the Netherlands, France, the United States and Canada and to relate observations to the planning problems and opportunities of North Pickering.

The focus of the paper is the design concepts and physical forms of new towns rather than the diverse purposes of their origins, the implementation and administration strategies of their creation and operation and the social, economic, and technical circumstances which determine their shape. This concept and design bias leaves the review all too shallow in its presentation of the real determinants of new town form, but to do so would require a major work of study and publication much beyond the time, resources and primary purpose of this paper.

From the multitudes of new towns and new town studies which have been undertaken in Europe and America, only those which exhibit significant ideas have been included in the review. Many towns which are in themselves quite satisfactory are omitted because they offer little of conceptual significance or because they are based upon town ideas already identified in the examples presented.

In presenting those new towns to which the review draws attention, an attempt has been made wherever possible to assemble the information on a grid identifying regional context, outline plan, community structure, housing, town centre, open space and recreation, circulation, industry and commerce, education and institutions and servicing and growth. General information on location, size, population, density, housing mix, land use budget, economic base and references is included. An adjoining page presents observations on the possible significance of the town and its design ideas to North Pickering. Supplementing these analytic sheets, other illustrations are included of plans or planning matters where availability of information or the nature of the ideas precludes the grid approach.

In addition to comments on the relevance of each of the town forms presented to North Pickering, an attempt has been made in Part 7 to summarize the basic ideas that might be of interest to the concept development.

If this paper identifies ideas about new towns which will assist and illuminate the North Pickering planning process, it will have achieved its limited objective.

**BRITISH
NEW TOWNS**



PART 1: BRITISH NEW TOWNS

1.1 History

The 34 British new towns in various stages of planning and development constitute a unique social, physical and economic achievement. Their origins extend back to those philanthropic 19th century industrialists who at Bourneville and Port Sunlight built good housing for their workers. But it is the urban idealist Ebenezer Howard who provided the philosophic basis for the new town movement in his publication of 1898, Tomorrow - A Peaceful Path to True Reform (later re-issued in 1902 as Garden Cities of Tomorrow). Frank Schaffer, now Secretary of the Commission for the New Towns, summarized the reformer's vision:

He saw a town as a complete social and functional structure, limited in size to some 30,000 people with sufficient jobs to make it self-supporting, spaciously laid out to give light, air and gracious living well away from the smoke and grime of the factories and surrounded by a green belt that would provide both farm produce for the population and opportunity for relaxation and recreation. Growth, design and density would be strictly controlled through public ownership of the land.

Garden Cities of Tomorrow is not a book about architecture, sanitary reform or utopias; it is mainly about urban economics and theories of urban growth. Howard suggested a merger of town and country possessing the advantages of both and the disadvantages of neither. He proposed that "the town estate would have associated agricultural activities including large farms, small buildings, allotments and pastures which would utilize the refuse of the town."

Ebenezer Howard's Garden City Association became the seminal Town and Country Planning Association. The Association together with his demonstration garden cities of Letchworth, begun in 1902 thirty miles from London, followed in 1920 by Welwyn to a plan by Louis de Soissons, continue their contribution to the evolution of the new town idea.

This evolution saw a minority section of the 1938 Barlow Report on distribution of industrial population advocating the building of garden cities and satellite towns. Thus 40 years of new town talk without new town action were followed by Churchill's appointment of Lord Reith to advise on problems of post-war reconstruction. Professor Abercrombie, commissioned by Lord Reith to prepare a plan for the Greater London Area, proposed in 1944 that 8 to 10 satellite towns should ring London. In 1943 the new Ministry of Town and Country Planning was established and in 1945 Lewis, later Lord Silkin, the Labour Party Minister of Town and Country Planning appointed Lord Reith to prepare recommendations later enshrined in the New Town Act of 1946.

The First Report of the New Town Committee published in 1946 set out the planning criteria for the preparation of new town plans. As these guidelines shaped the first generation of new towns, and in modified form are still of significance, it may be well to summarize them.

A.

Town Size

Population range optimum 30,000-50,000 but flexible, the lower limit being set by the need for

- 1) balanced community
- 2) diversified industry
- 3) social facilities

while the upper limit is set by

- 1) accessibility of residents to industry, shopping and cultural centres. This accessibility is based on walking or cycling distance.
- 2) accessibility to countryside.

B.

Designated Areas

Town gross density: This is a simple calculation based on the following two criteria and assuming a circular or radial plan. - 12 ppa and 15 ppa maximum. This includes recreational parks.

Green belt: 3/4 mile width mainly agricultural use.

Population (persons)	20,000	30,000	40,000	50,000	60,000
Built Area (acres)	1,650	2,500	3,300	4,200	5,000
Green Belt (acres)	3,850	4,500	5,000	5,500	6,000
Total Area (acres)	5,500	7,000	8,300	9,700	11,000

C.

Main Centre

Principal shops, public and administrative buildings

Area: 10 acres per 10,000 population

D.

Industrial Zones

light and medium type manufacturing industries:

Area: 100 acres per 10,000 population

Site Depth: 200 ft. to 500 ft. depending on factory size

Service Access: rear access of site is required

Journey to Work: within walking or cycling distance

E.

Residential Zones

Area: 55-65 acres per 1,000 population. This includes local shops, all schools, churches, public buildings, and services, roads and carparks.

Net Density: 30 ppa

Open Space: 7 acres per 1,000 population minimum, 10 acres per 1,000 population recommended

Neighbourhood: about 10,000 population
"a natural and useful conception; but it should not be thought of as a contained community of which the inhabitants are more conscious than they are of the town as a whole". It is defined by principal roads with building-free frontage. 3.5 to 3.75 ppa. average (based on national average). Majority of houses should have 3 bedrooms but there should always be some with 4 or more.

F. Shops

Number: from 1 per 100 population to 1 per 150 population (more are needed if town has regional custom)
Location: in main centre every type should be represented at earliest practicable stage, while in neighbourhood there should be isolated groups mainly for necessity consumer goods.
Journey to neighbourhood centre: 1/2 mile walk should be maximum
Frontage: flexible, but where narrow, depth should be 30-100 ft. There should be rear service access.

G. Roads

Ring: suggested dual carriageways: connectors for regional traffic, influenced by topography, often forming "natural boundaries for neighbourhoods".
suggested dual carriageways: the inner ring runs "around the main shopping and civic centre", the focus for radial roads. Further rings or connectors are spaced between the inner ring and green belt, bypassing the town boundaries for neighbourhoods.
Residential: They subdivide neighbourhoods and have two-way traffic. The width should be 40 ft. minimum, and 20 ft. minimum carriageways. The paved footway and verge should be a minimum width of 10 ft. 6 in. Also, they are a "network of streets, so spaced as to provide building plots of convenient shape and so aligned as to give easy gradients for traffic". Furthermore, they should "not, by providing shorter routes, attract any through traffic.....and should connect with main roads at a limited number of points".

H. Education

Type of school (for 50,000 population)	Pupils in each school	Schools and Play- ground area	Playing fields (acres)	Total area (acres)	No. of Schools	Total Area
Nursery	40	1/2	-	1/2	30	15
Infants	200	2	-	2	10	20
Junior	320	2	3	5	10	50
Secondary a) standard size	500	3	14	17	8	136
b) smaller size	300	2	9	11	2	22

Accessibility: Nursery school: 1/4 mile maximum walk
 Infants school: 1/2 mile maximum walk
 Junior school: 3/4 mile maximum walk

I. Health Service

Full hospitals: acute cases medical and surgical
 minimum of 80,000 population to support
 capacity: optimum 800 beds, minimum 400
 beds

Intermediate hospitals: 5 beds per 1,000 population
 minimum of 100 beds

Local hospitals: 1 bed per 1,000 population
 small towns around 20,000

Special hospitals: maternity 0.6 beds per 1,000 population
 tuberculosis 0.8 beds per 1,000 population
 infectious disease 0.8 beds per 1,000
 population
 (therefore 110 beds for 50,000 population)
 capacity: 12 doctors maximum, 4 doctors
 minimum
 2,000 patients per doctor
 (hence 3 to 4 centres for town of 50,000)

Health Centre: 2,000 patients per doctor
 (hence 3 to 4 centres for town of 50,000)

J. Social and Recreational

Theatres: for 40-60,000

Capacity: 1,000-1,500 seats for regional performances
 and repertory and 400-600 seats for amateur
 drama and opera

Location: town centre

Libraries:

Area:	1/2 acre (20,000 population)
Capacity:	28,000 volumes and 5,000 reference (20,000) 60,000 volumes and 20,000 reference (60,000)
Open Spaces:	see under residential
Refreshment Houses:	1 per neighbourhood. 1/2 acre minimum to allow for parking
Church Sites:	approximately 25 for 60,000 population

Population Growth Shifts

Recent British demographic studies show population declining in the conurbations between 1951 and 1961, and growing in the smaller urban areas of 50-100,000 population. Between 1961 and 1971 there was a further conurbation population decline at sixteen times the earlier rate with small towns and rural districts accounting for almost half the national growth in areas of low and medium density. In the same periods, the largest industrial growth was in and around big cities and employment decentralization is not as pronounced. Thus the few big centres tend to monopolize the trade, and employment growth is further from the expanding population it employs. The process of small centre growth has been quite independent of New Town governmental activity which has been almost entirely directed into larger and more concentrated urban areas. The natural trend may call to question the decentralization necessity and purpose of the new town program.

1.2

Mark I New Towns

The first new towns were established in Britain over 25 years ago. Between 1946 and 1950, 14 new towns were undertaken. Eight of them; Basildon, Bracknell, Crawley, Harlow, Hatfield, Hemel Hempstead, Stevenage and Welwyn Garden City are overspill towns lying within 20 to 30 miles of London, a function fulfilled for Glasgow by East Kilbride. Four towns, Newton Aycliffe, Peterlee (coal fields), Corby (steel) and Cwmbran in Wales are related to the particular needs of local industry. Basildon ameliorates the problems posed by scattered urbanization, and Glenrothes provides a new growth point for diversified industry in order to extend the potential of Scotland's central industrial belt.

These together are sometimes referred to as the Mark I New Towns. Mark I Towns are entirely new rather than expanded towns of 20,000 to 60,000 population and were conceived as self-contained or balanced communities some 25 miles from London or about 10

miles from other important centres. Their role was to receive industrial and population overspill from London or to prevent decay in already established industrial areas.

Only the report for Newton Aycliffe, the third to be published (1948), is an exception to the above description in that it exhibits particular concern for social and community benefits. Its situation near Durham in a rundown mining area brought the planners into contact with the mining village atmosphere. Because of strong community sense and working class solidarity, the neighbourhood concept is abundantly evident as a closed unit. The master plan itself is physically very diagrammatic being more concerned with social principles.

Neighbourhoods in these Mark I Towns vary considerably from 1,500 people in Aycliffe to 6,000 in Crawley and 15,000 in Harlow. This is an aspect in which these first new towns seem to vary widely. In them, questions arise regarding the relevance of "a community sense" to a society of increased affluence, mobility and individual freedom. It is a society that may well query the validity of the highly structured zoning separation of various land uses.

1.3 Mark II New Towns

After the Mark I series, 10 years were to pass, except for Cumbernauld, until the Mark II series of new towns were undertaken. These include Cumbernauld (disregarding Hook, unbuilt) (1955), Skelmersdale (1961), Livingston (1962), and a further group of Redditch (1964), Runcorn (1964), and Washington (1964). Included also would be Ireland's Craigavon (1965), Antrim (1966) and Ballymena (1967). Mark II Towns embarked upon experimentation of a social and physical nature.

Cumbernauld

In Cumbernauld we see a town form quite at variance with the neighbourhood oriented multi-centered earlier examples. It is a motor town strongly conditioned by a refined road system based on detailed traffic analysis and involves 3 distinct elements: radial and radial link roads connecting parts of the town to one another and to the trunk road systems; collector roads within housing or industrial areas, and residential roads, mostly cul-de-sacs, which give access to housing units. Grade separated major intersections and the complete separation of pedestrian and motor traffic are provided. All major facilities of the town are housed in a unique and gigantic megastructure which commands the top of a hill and contains commercial, educational, recreational and governmental facilities. The highest density residential environment of any UK new town surrounds at walking distance this multi-use, multi-level,

climate-protected centre. It is in effect a unified, highly urban town form with a dominant central area and no sub-centre, of consequence, fully motorized with a completely separated pedestrian network. Although the original concept aimed at a town form without landscape or neighbourhood subdivision, the final form is subdivided into social cells rather like its predecessors.

Cumbernauld applied the principles which shaped the study of Hook as a highly structured linear town form with 100,000 people in walk-in compact relationship to a multi-use, multi-level town centre.

Livingston

Livingston advances a more flexible solution leaving open more options and "placing importance on the mobility of the individual over sense of community". A grid structure has been formulated whose stated advantages are:

- "the town can grow in sections"
- "each section might reflect the changes in living conditions"
- "should the town development be slowed, the chances of the town functioning as a unit will be increased"
- "should the town have to expand, this arrangement within the limits of surrounding regional roads might also accomodate such an increase"

The town is planned in "environmental areas" following closely the Reith Recommendations. Industrial and commercial activities are dispersed thus decentralizing traffic movement which is necessary for the functioning of the grid structure. Among Livingston's five industrial estates is Scotland's first 150 acre industrial campus specifically designed for industries which will be limited to university research.

The University of Cambridge Working Paper 64 on New Towns says of Livingston, "While the proposals for Skelmersdale and Hook were derived from the proposals for Cumbernauld, Livingston shows the initiation of a process that led to the formulation of the plans for Craigavon, Washington, South Hampshire and Milton Keynes."

Craigavon, the first Irish New Town, links two important existing communities through new development and renewal techniques and employs the directional grid road structure, environmental areas and regional integration characteristic of the Livingston approach.

Hook, (never designated for development) takes the Cumbernauld idea of a strong sense of urbanity and the importance of the central area and proposes the ultimate expression of a town conceived as a total entity. The neighbourhood concept is replaced by a strong clustering of the residential areas around

the commercial centres. Housing is fully integrated with other uses. Pedestrian and vehicular movement is totally separated. The architectural town form directly expresses the planning ideas. Public transport is not an important aspect of the proposal.

Runcorn, Redditch and Washington are three towns which, though part of the Mark II series, establish the transition to the Mark III towns. These new towns reflect the Government's proposals as set forth in the report Strategies for the South East, to expand the population targets of the new towns. These somewhat larger towns generally do not depart from the original development principles. Their size is generally under 100,000 people consisting mostly of immigrant residents. Each is close enough to form part of existing conurbations, a departure from the Reith Recommendations of a 25-30 mile separation, but their planning is relatively unconstrained by existing developments. Although the concern for self-containment is abandoned, these towns are still conceived as separate planning entities.

Runcorn

The structure of the town is largely dependant on circulation considerations aimed at achieving a balance between the car and public transportation. The traffic free environmental areas perpetuate the neighbourhood distribution of the residential areas which became arranged like beads along a rapid transit string. Local services have become available for the whole town because of their increased accessibility. There are shortcomings: the work journey is often dissociated from the main rapid transit routes; subcentres along transport routes are not diversified in use leaving the central area still of primary importance. Noteworthy in Runcorn is the public transport busway system with specially designed buses travelling on rights-of-way designed and reserved for them. Each residential area (approximately 15,000 people) has a wide range of social and shopping facilities within easy and safe walking distance. A comprehensive system of foot paths is designed to link every residence with schools, open spaces and busway stops. The new "Shopping City" with 1,000,000 square feet of climate controlled shopping built on an elevated deck is positioned at the crossing point of the figure 8 transportation system. Multi-storied car parks for over 2000 vehicles serve the first phase of 600,000 square feet of leasable floor space.

Redditch

In Redditch, the residential systems are unique, growing continuously at the sides of a linear band of services stretched along the public transport route rather than being defined and enclosed by the transportation system network.

Washington - The approach is stated in the report "Instead of being seen as essentially separate, self-contained entities, they (the New Towns) are now seen as forming part of a regional or metropolitan complex... The regional economic objectives imply therefore the provision of a high degree of accessibility over the whole area and within the urban region".

Washington's proposals for "overlapping patterns of social organization and cross movement in all directions, mixes of uses and the town as a complex overlapping structure" would presumably lead to a neutral mile-square grid street pattern allowing for increased car use and mobility in an affluent society. It would also avoid predetermination of activities. These goals of the planners are by no means as well reflected in the Washington plan as in the later proposals for Milton Keynes. The Washington plan produces residential villages of about 4,000 people, each with its own shops, community hall, pub, club and school. These village centres are augmented by local centres providing a wider range of facilities and finally by the New Town centre. Innovative housing, including new forms adaptable to changing family needs have attracted international interest. Private house building for owner-occupancy is an important component. Washington is a wired city with plug-in telephone, radio, television and data transmission facilities to every dwelling.

1.4 Mark III New Towns

The eight Mark III Towns have two main common characteristics: population ranges from 200,000 upwards and the incorporation of large existing developments making them to a considerable degree expanded towns. The concept of entirely new towns has been replaced by major expansion towns. To this there are advantages:

- a more rapid and balanced implementation
- more attractive conditions during initial years of expansion
- possibly a wider choice of jobs and life styles
- an opportunity to contribute to redevelopment of existing crowded centres

These are of course hazards mainly concerned with acceptability by the existing citizenry.

In this series, South Hampshire was proposed as a corridor of growth linking two existing cities, but the development proposed in 1966 was never designated. Working paper 64 said of it:

"It is a landmark because it is the first study to seriously consider the performance of alternative structures on an accessibility basis within the complexity of a big city and the variety of interactions it entails... This is the first proposal

actually to interpret the goals it formulates in concrete spatial terms. The main aims include maximum freedom of choice, communications and associations of people throughout the area and integration of two existing communities. The expanded town should function efficiently at each stage of its growth and the structure should lend itself to change and renewal."

Central Lancashire, a proposal for 500,000 people designated over an area of 55 square miles in 1971, is a variation on the directional grid proposed in South Hampshire. The plan manifests a concern for public transport and for the preservation of existing communities. Major towns included in the designated area are Preston, Chorley and Leyland with an existing total population of 250,000.

In the proposals for Warrington and Northampton, each is intended to expand an existing population to double its size at ultimately 250,000 people. By necessity, "the program of development is an integral part of the urban structure plan". Speedy growth up to 3,000 dwellings a year is the target. Concepts of flexibility, mobility, freedom of choice and diversity permeate the proposals. As with Central Lancashire, a 3 level community structure is proposed. Northampton's expansion is being undertaken jointly by a New Town Development Corporation, concerned with employment, housing and other local needs of people coming to live in the expansion areas, and the County Borough Council concerned with redevelopment of the town centre and with the high speed roads linking the existing town to new housing and employment and to the national trunk road network (M1). The rebuilt town centre and the new town expansion areas will provide employment for an additional 40,000 people. The Corporation is building standard factory units ranging from 750 to 20,000 square feet. Residential areas will each be served by local centres providing educational, shopping, health, social and recreational facilities. The first of these includes a focal point with a large covered shopping area linked to a Forum for a wide variety of social, recreational and sports facilities and to an upper school publicly available for non-school use.

Telford's study thoroughly relates broad planning aims to their physical implications all in impressive detail.

In the latest three cities, Milton Keynes, Peterborough and Irvine, there is an increasing emphasis on defining the future society they will serve. "Milton Keynes is being planned in a context in which the fabric of society and its institutions is under review and some wholly new problems and opportunities are becoming viable." The plans and the planning process are concerned with the increasing demand by the public for a more direct say in matters formerly decided by central and local government. Thus, public participation becomes an issue, albeit

one that is not yet fully or successfully incorporated in the planning process. These cities are expressions of a more affluent society and so creative leisure, education and services in general are of greater importance than in the previous new towns and expanded cities proposals.

Milton Keynes

This plan reflects a new planning obligation. "The central aim of the plan is to arrange these necessarily fixed elements (transport, drainage, water supply and other basic services) in the new city so as to allow the greatest possible scope for freedom and change as it is built." The planning process thus will have to continue throughout the implementation years which in turn requires a plan which is a general open-ended development strategy and implementation program, including data collection, predictions and projections, monitoring and evaluations. All of these are far removed from the plan as a rigidly defined proposal. In response, the structure of the Milton Keynes plan consists of a one kilometer transportation grid within which land uses are located relatively freely. Public and private transport of a balanced nature share the same routes. Residential areas are thought of as undefined by the road structure. Their local facilities are located along the main transportation routes, making them available, even as minor activity centres, to the whole city. There is provision for a 2-mile long city centre area, one of the largest in Europe, whose first phase will include 900,000 s.f. of shopping and space for 10,000 cars. A linear town park of major dimensions is a dominant landscape and open space component of Milton Keynes.

In Peterborough the present population of 89,000 will be expanded to 185,000 over the next 15 years. Three "townships" each for 20,000 to 30,000 people are being built west of the existing cathedral city. The city centre plan envisages four large renewal areas including offices, shops, stores, public buildings and a six-mile county park from the existing city centre to the new development. This centre is seen as a revitalized regional hub of activity for some 400,000 people. Peterborough's plan expresses a rebirth of social concern "to offer the highest possible quality of social and family life for all, from managing director to office cleaner . . . this plan is for people."

Irvine - The dominant feature is the concept of "community routes" utilizing existing roads and country lanes for public transit only. These community routes become the focus of the adjacent development with social educations and other facilities at transit stops. Higher density housing will border the community routes with lower density developments farther away from them. The new shopping centre complete with office spaces will span the River Irvine ultimately linking the old centre of Irvine and the important harbour offshore recreational developments and its leisure centres.

1.5 Conclusions

Within the disparities of location, size, planning principles, standards, relationships to existing development etc., certain generalized observations may be made regarding new towns in the U.K.

- new towns have evolved from the self-contained independence of earlier towns towards much larger towns with greater dependence upon their region. Recent new towns frequently take the form of expanding existing urban areas. The change has been in effect from a suburban to a sub-regional scale.
- regarding town population, there has been a continuous progression towards larger proposals (South Hampshire, 1,500,000) including expansion of the original targets of many of the first generation towns. The size of new towns has steadily increased from 50 to 1,500 square kilometres.
- in the last ten years, the growing importance of renewal problems has triggered a mixed solution of expanded existing towns, combining in one operation renewal and overspill. Thus the isolated model communities idea has been superceded by a major expansion of towns. Benefits of the "existing/new" mix are presumably rapid implementation, better conditions in the initial years for the incoming population, a wider choice of living circumstances and an effective attack on existing urban problems. The economic consequences of the mix approach have not, it seems, been analyzed as yet, but rehabilitation costs of reviving old town centres are demanding. These smaller existing/new towns have been undertaken utilizing the 1952 Town Development Act which relies upon agreement between the exporting authority and the receiving authority.
- from 1946 to 1970 the town plan has changed from being a rather rigid blueprint for development to being a strategy plan with a monitoring and evaluation system to measure performance and guide future decisions. Therefore implementation and staging strategies become an integral part of the plan and the planning process. The monitoring system opens the doors for public participation and for wider collaboration with involved authorities.
- staging propositions involving detailed proposals over extensive time spans have been considered an important part of recent plans from Runcorn on. "We can perceive the growing realization among the planners of the fundamental question of planning not only in space but in time."
- public and private mobility has been strongly and increasingly emphasized with a hierarchical road system, sophisticated transit proposals and pedestrian segregation. Almost all town forms have some idea about major circulation shaped by a grid or cellular structure covering a large part of the designated area and serving the activities within them.

- relationships between principal land use parcels have changed towards the incorporation of a greater mixture of uses in residential and industrial land uses as a series of environmental blocks (neighbourhoods) similar in shape and density and covering most of the designated area. "These neighbourhoods with fixed populations of between 2,000-10,000 and uniform density of approximately 30 to 80 per acre were introduced in the early new towns with planning of schools and local services, and were applied in larger developments in the form of environmental areas located between the transportation system."
- current policy is that 50% of all houses should be sold to their occupiers and only 50% shall remain in the rental sector. In early new towns, only about one in every five dwellings were owner occupied. Most industrial and commercial property is owned by the development corporation and leased to the occupiers thus providing excellent financial returns. (Usual building leases of 21 years and ground rents reviewed at frequent intervals.)
- combination of land purchase at relatively low cost and the retention of ownership of most of the property by the development corporation is probably an effective element in accommodating members of low income groups. New development corporations have received a central government housing subsidy for rented dwellings similar to those received by local authorities for rental council housing.
- encouragement of public participation has been a feature of recent new town planning processes, but the operational mechanism still envisages that members of the development corporation are appointed by and responsible to the central government. These members are in no way formally responsible to the population of the area they are to serve. This mechanism may reflect the fact that in a number of places new town designations engendered strong local residence opposition. Some argue that the new towns program would have been stifled from the start if the development corporations had been democratically accountable to the existing populations of the area, and that in any case such accountability would serve more the existing than the incoming population. The decision of the 1959 New Towns Act to establish the New Town Commission to inherit developed new towns continues this non-participating tradition.
- there is little provision for association of the towns with nearby agricultural activities, other than allotment gardens, and they thus miss out the presumed advantages of the town and country symbiosis and miss out any possibilities of a special contribution to the solution of environmental and resource problems as for example regarding the use of town waste for agricultural purposes.
- the provision of employment for the citizens of the town is a crucial consideration because British policies of decentralization apply equally to industry and population. The

new town corporations pay particular attention to attractive industry and synchronizing industrial and residential growth. To date prospective residents must prove employment in the new town before they can be provided with a home.

Early new towns emphasized manufacturing industries but the transformation from an industrial to a post-industrial society resulted in extraordinary growth of tertiary employment.

Tertiary employment was lacking in the early new towns, a condition the latest towns hope to remedy. In itself this goal suggests larger town forms for which tertiary employment opportunities exhibit a strong preference.

- community facilities and shopping are distributed on a tri-level system in most of the recent new towns -- a main centre to provide the larger and the more specialized facilities, local centres to provide for the daily needs of the residents and a middle convenience shopping system in between.
- an overwhelming percentage of new towns people have expressed a preference for house and garden.
- it is increasingly recognized that future new towns will require a more complex partnership between public authorities and private developers.

Observations about the broad aims and accomplishments of the new towns made in the University of Cambridge Working Paper 64 are worthy of quotation at length.

"A. Regional Location

It is difficult to compare the reasons for the final location of the designated area within the region except when the designation is in response to a specific problem such as declining war industry in Aycliffe. Shopping allocation and distribution is affected by proximity to existing centres and, for example, we must seriously observe the differences between a New Town located near a major shopping centre, like Runcorn, and a New Town that has to perform that function itself, like Peterborough. In general terms, a pattern seems to have evolved from relative independence (self-contained earlier towns) towards complete independence in the later bigger developments, passing through an intermediate stage of greater dependence with Runcorn, Washington and Redditch, but always stressing the official aim of absorbing overspill and creating new bases for industry.

B. Major Planning Policies

Town Population

There has been great variation in the scale of the proposals from Newtown (13,000) to South Hampshire (1,400,000). This is one of the aspects in which there has been more variation between all the towns, including the first group.

The Reith Recommendations have been implemented quite freely, with a progression towards bigger proposals. With few exceptions, this difference has been reflected in the depth to which the planners have been able to consider detail in the plans.

Entirely New and Major Expansion Towns

In the last decade, the growing importance of renewal problems has been realized by the government. This has suggested a mixed solution for New Towns which combines in one operation renewal and location of overspill population from neighbouring communities. The 'isolated model communities' idea has been replaced by major expansion towns in practice.

It would be interesting to obtain comparative figures on the achievements of both types of proposals regarding national long term investment as well as, in the case of expanded towns, the mutual benefits of the existing and incoming population to each other. It would also be interesting to compare expanded towns not only with New Towns but also with normal towns (those whose growth has been relatively unconstrained by any planning authority), to appreciate truly the benefits of the existing/new mix. Within these 'normal towns' it would be of particular interest to look at spontaneous new towns, that is to say, major developments by independent bodies that have occurred in the last two decades at a similar scale and speed as the New Towns but without government sponsorship (like Widnes or Ellesmere Port in Merseyside). The question whether expanded towns can provide the possibility of a more rapid implementation, better conditions in the initial years for the incoming population, a wider range of choice

for the existing and incoming population as well as an effective attack on the existing environmental and functional problems is an economic one. The answer lies in assessing the large rehabilitation costs necessary in reviving old town centres and related facilities.

C. Broad Aims

These are difficult to define. They vary from the more intangible humanist social statements such as 'respect for local tradition' to 'aesthetically pleasing' or 'comprehensible structure', 'distinctive character', 'a joy to live in' to technical criteria, but include aims like 'flexibility', 'mobility', 'choice', 'balance', dispersal'. These latter terms have been used in the following contexts:

Flexibility

Size:	Continuous expansion beyond the target. Interrupted growth before target.
Basic form:	Change in network structure or land use distribution.
Housing:	Higher space and servicing standards. Higher or lower plot development ratio standards. Changing population structure.
Employment:	Shifting proportions of basic, service and extractive sectors. Changing proportions of employed population. Changing external commuting pattern.
Education:	Changing demands on facilities.
Leisure:	Unforeseen growth of leisure activities with the arrival of shorter working week.
Transport:	Changes in car ownership levels and resulting changes in modal split.
Accessibility	
Interaction:	Accessibility throughout the town between the various activities.

Mobility

'To cater for increasing mobility' is a repeatedly formulated aim. As stated in the Central Lancashire Report, 'public and private transport are best served by very different forms of development. The latter needs dispersal to achieve maximum accessibility at low construction costs, the former requires concentration.' It is clear that mobility and accessibility are closely related factors. Accessibility as acknowledged in the South Hampshire Report, has been considered a crucial factor in planning and evaluating towns. We have to consider the effects of different modal split proposals as integral parts of the plan.

Diversity and Choice

This aim is often common with flexibility.

Housing: Choice of type of dwellings and location related to public and private ownership.

Employment: Choice of employment for the various socio-economic groups.

Education: Alternative facilities.

Services: Alternative facilities.

Transport: Choice of mode.
 Alternative routes.

Balance

In the light of observed age structures in the first towns, balanced population is a common concern in the later towns. This generally means balanced by age groups, race and social classes, not only for the towns as a whole but within environmental areas. Within the aims of this study we have not felt it particularly relevant to consider this information, especially as it only occurs in detail for a few of the later proposals.

Even so, we remain aware of the influence of such issues in the provision of schools and other services.

Dispersal:

The Reith Recommendations made a point of clustering employment and service centres for mutual convenience. The later New Towns, on the contrary, aim at the dispersion and decentralization of traffic-generating single land uses. Thus it is necessary to consider separately the issues of dispersal of services and dispersal of employment in general. Dispersion of services as an aim in the most recent proposals can be questioned in a society with increased mobility, where people are prepared to travel further for choice of facility.

Though these broad aims have an important influence on the determination of specific planning policies for housing, employment, transport, etc., it is interesting to note that only some plans (South Hampshire, Telford and Milton Keynes, for example) establish clearly the link between aim and policy. In many cases there is a certain lack of relation between them. In other cases they seem to have been partially applied. Regarding specific policies, there still seems to be conflict on standards relating to provision of their relationship to the rest of the city. Certainly there is a correlation between the formulation of ideas, aims and policies and the influence of particular planning consultants."

- By way of visual criticism it must be admitted that in new towns the visual variety of older settlements is missing and the low density and constant building heights tend to visual monotony. New towns have exhibited village scale not town scale. The new town forms are totally different from the homogenous urban forms of history, "a place in which a townsman lives, works and plays in a tightly knit high density urban complex . . . a form beloved by architects and typified by Italian hill towns . . . but these urban forms are products of a society that no longer exists and a technique no longer relevant."

Speaking of visual qualities, Sir Frederick Gibberd notes that all new towns have an overall similarity of appearance which he finds not at all surprising because they have been built in a short space of time for a society with common characteristics.

"The visual appearance resulting from the master plans is totally different from that of the old unplanned form, and through its unfamiliarity, has given rise to a good deal of criticism. The difference is most marked when visiting the town: instead of a gradual decrease in speed as the density of buildings and traffic increases, until the congested core is reached, the journey is a rapid one through wide spaces with prospects of houses set in trees and the occasional large building like a school, until, within a few minutes, one is confronted by the dominant composition of the town centre -- looking rather like a compact medieval town and, incidentally, about the same size; when the master plan has been structured towards making the town centre a visual as well as functional focus the impact is all the more forceful."

- Llewelyn-Davies complains that low density limits "urbanity" as buildings are too far spaced for coherent architectural effect.

" - regarding town centres, there is considerable agreement that concentrated highly centralized multi-level centres, as at Cumbernauld or in the Hook studies are difficult to alter or extend. Furthermore, highly centralized plans increase traffic distribution problems.

- twenty years ago, the social aim was an acceptable pattern of life for the majority with no great need for alternatives. Today increased affluence (2 to 3 times purchasing power) and more education generate a demand for free choice among alternatives in housing, work and recreation. The Milton Keynes plan sees this phenomenon as providing the new goal for town design, and so specifies the following six goals.

1. opportunity and freedom of choice
2. easy movement and access; good communications
3. balance and variety
4. attractiveness
5. public awareness and participation
6. efficient and imaginative use of resources"

In general for Milton Keynes, this has involved "rejection of planning based on defined catchment areas in favour of widely overlapping areas of service from widely distributed nodal points."

Regarding public awareness and participation, the planner of Milton Keynes had this to say:

"If we are serious, as we must be, in inviting people to participate, then they must be able to influence the outcome. A new town takes about 25 years to build. Its only inhabitants to begin with are those already living in the area at designation. Later, year by year, the new arrivals settle in the town in increasing numbers. When the master plan is being made, the incoming population has not yet arrived and cannot participate. Therefore, if their wishes are to have any effect, the plan must leave as many decisions as possible open for the future. It must be indeterminate rather than prescriptive. This really calls for a new attitude to design. Instead of making a physical plan to fit our concept of the good life, we must adopt a more modest and agnostic position. We have to try to design a physical infrastructure, for transport, services and other fixed elements, which permits the maximum freedom for future social patterns to develop. This has to be the aim in the future new town design, and it is a difficult and challenging concept."

He maintains that the concepts and consequent visual experiences are based on a resident preferred way of urban life which:

- enjoys open air exercise
- asks both for individual and family privacy and a measure of community life
- prefers a two-storey house with private garden
- is largely automobile dependent
- prefers segregation of home and work and has a love of nature.

Location of the New Towns

Scale 1:3 000 000



harlow

Harlow - Significance to North Pickering

Outline Plan

-sensitivity to the natural qualities of the site responding to valleys, roads and slopes.

Community Structure

-a three-tiered structure

-2 to 4 neighbourhood clusters of 20,000 each with shops, social provisions, service industries, secondary schools.

-town centre

-active social development with over 400 societies and clubs: a major theatre and art centre and excellent medical and health centre. A youth program involving 15 youth centres, clubs and 100 sports organizations and a playschool program.

Town Centre

-cramped if town expands from original 90,000 target to 130,000.

Open Space

-generous open space provision equivalent to 23% of the developed area.

-continuity of agricultural wedges with major open space elements of the plans.

Circulation

-largely radial to the town centre.

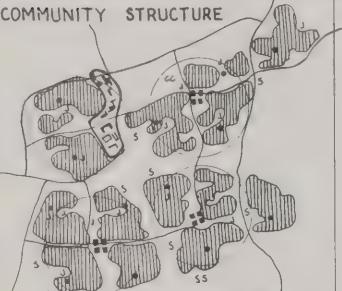
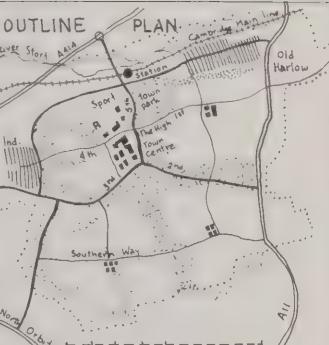
-separate cycle paths and footpaths extensively used.

Industry and Commerce

-industrial employment at 80 persons/industrial acre is much above Canadian intensity.

-3 level shopping hierarchy:- town centre; cluster subcentre; neighbourhood convenience shops.

REGIONAL CONTEXT



Harlow

location - 23 miles north-east of London
lies to the south of the Stort Valley & the River Lea from Liverpool St Station to Cambridge Town on the A11

size - designated area 6,395 acres
- developed area 5,200 acres
(balance in farmlands on edges of town)

population - existing 4,500
inake + increase 85,500
planned pop 90,000 (originally 80,000)

- possible expansion 130,000 (4 west + 2 east new neighbourhoods, no decision till 3rd London Airport resolved)

density - development 9000/695 14 p/a
7000/5200 17 p/a
- net resid 50 p or 15 du/a with 20% flats

housing mix - singles, semi-s - a small number
- multiple row - approx 80%
apts. - 20%

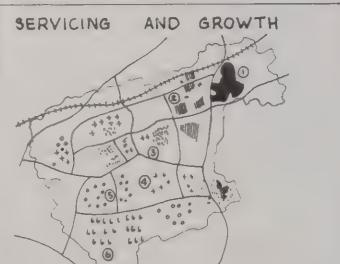
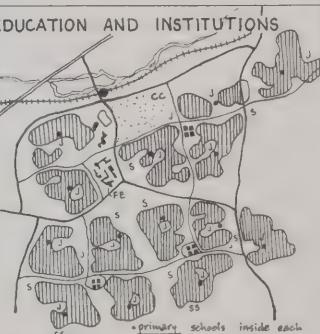
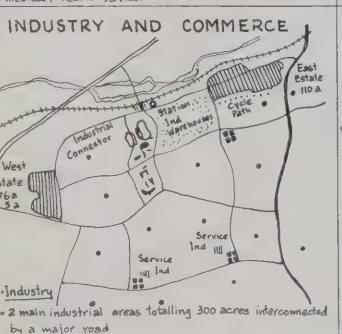
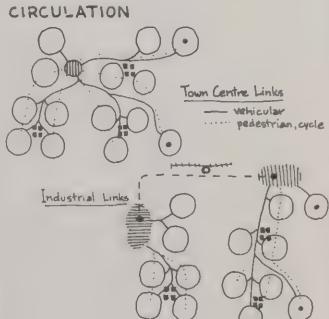
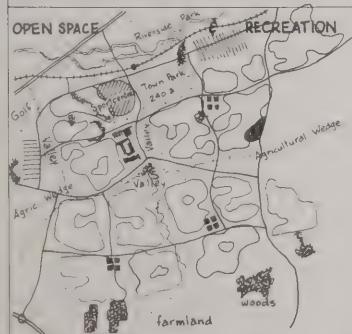
approx 8% owner occupied
- appts in 3 to 4 fl blocks + 15 fl panel blocks

land uses - residential 1700
open space 765 (1217 total)
industry 300
commerce 280+ inst.
education & inst. circulation

economic base - 80% of working pop are Harlow employed
- employed pop is 45% of total of which 20% in manufacturing & 25% in service bldg.
- 40,500 employed with 20,000 in the two industrial estates; 6500 come to work in Harlow; less than 10% commute to London

remarks Harlow Arts Trust has purchased over 20 art works Henry Moore, Barbara Hepworth, Lynn Chadwick, John Piper

references - architect-planner Sir Frederick Gibberd
- Gate House: The High, Harlow, Essex
- Dev. Corp.: Adams House, The High, Harlow, Essex



play space - under 5 in housing areas 1/200 sq m children
- playground - 8-13 between housing areas 1/200/1000-250 m
- playfields - allages inter-neigh green wedges 38/1000
- Sports centre all ages north of Town Centre
total public recreation 42/1000
- park walkways - town park, commons etc 12/1000
- allotment gardens near housing 1/2 a/1000
- private recreation 28/1000
total 8½ a/1000 = 765 a + 279 a. woodlands + 170 a. golf + 3 acres water gardens = 1217 a + agric. lands

shopping - at Town Centre 200 shops, 2 dept stores
- at sub-centres 30 to 40 shops each
- in neighbourhoods - 14 neighbourhoods each with 3 to 4 convenience shops.

services - water supply from wells & reservoirs.
sewage - Rye Heads Sewage Disposal Works.
Middle Lea Regional Sewerage Scheme
growth
from North East westward then from South-East westward
- 1500 to 2000 du./yr.
- Industrial building kept slightly ahead of housing
- Stowne sub-centre began before the High.

cumbernauld

Cumbernauld - Significance to North Pickering

Regional Context

-existing village to be preserved and protected but form part of the main town.

Outline Plan

- a compact urban form, with the highest development density of British New Towns.
- 26 persons/acre developmental density.
- 85 persons/acre net residential density.

Community Structure

- a cluster city with one major urban centre surrounded by compact residential units - the town as one unit.
- neighbourhood unit initially abandoned in favour of an integrated town form.
- special attention to new housing design forms responsive to town form and density underlying the concept.

Town Centre

- multi-level, multi-purpose, climate-sheltered town centre in a giant megastructure. (growth and change problems?). The largest structure of its kind in the world.

Open Space

- entire peripheral town areas a continuous recreation and open space amenity.
- generous open space - 32% of developed site.

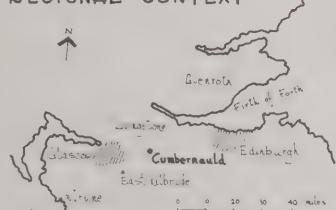
Circulation

- complete pedestrian-vehicular separation.
- a structured and hierarchical road system.

Industry and Commerce

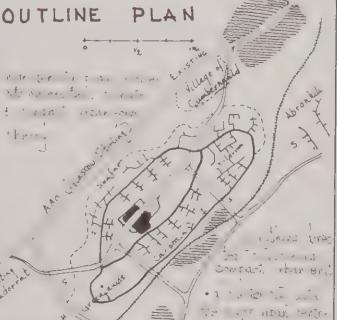
- a shopping street rather than a market square.
- 70 worker/industrial acre; communal facilities in industrial areas.

REGIONAL CONTEXT



Glasgow 30 miles by car or rail, Edinburgh 1 hr on the main road/rail link. In a different time frame
designed for a roadless town, it is built on steep both sides & narrow terraces. This is the reason there is a
local road to the front of most buildings. People have to go
up and down & climb should a road problem still occur.
All roads are built on such a steep gradient
that people have to walk up & down the town.
The town has a lot of open space & green areas to be
preserved, & its urban extension will come part
of new town.

OUTLINE PLAN



HOUSING

- needs system of roads & footpaths, services later side perched on rear of houses roads lead toward the town by rear paths linked to them. Roads all houses are approached by rear entrances/garages in stepped areas at ends or terraces long walk to many garages
- footpath access: single aspect service road access - position perpendicular roads/garages privacy attained by careful siting of each house and roads to the side - an angle aspect, with frontage & patio houses higher densities of 20/24 a year centre, lower densities of 70 per annum outer areas. At present residential density over the town is 85.5 per ha or 26.3 houses/ha. Thus Cumbernauld is a very densely built town. It's a 4 & 5 storey blocks with 50% of them terrace houses with or without very small garages. (though 70% wanted garages). Density on Hilltop is 48.584 p. ha 588.3 a. - 86.6 p/ha.
- best qualities are traffic seclusion, good orientation, compactness, ingenious design

COMMUNITY

STRUCTURE

TOWN CENTRE



NORTH-SOUTH SECTION THROUGH FIRST STAGE

ENTERTAINMENT

SHOPPING

CIVIC BUILDINGS

PARKING

PEDESTRIAN AREAS

RESIDENTIAL

STREET

FOOTPATH

CLIFF

ROCK

WALL

STAIRS

STREET

ROCK

WALL

STAIRS

hook

Hook - Significance to North Pickering

Regional Context

- an urban form which stands in distinct contrast to the countryside.

Outline Plan

- a coherent, compact uni-centred linear town form of a highly structured nature.
- 2/3 of all residents within 10 minutes walk of the central areas.

Community Structure

- rejects separate neighbourhoods: residential components project outward along pedestrian routes from the central spine. Central area fully integrated with housing. Dwellings are oriented to pedestrian ways rather than to roads. Housing related to expanding, stationary and contracting household forms.

Town Centre

- a 3/4 mile long, multi-level megastructure like a lid over a small valley. Pedestrian platforms occur above service circulation and parking decks below.

Open Space and Recreation

- major open spaces are sited to form a continuous belt around the town form.

Circulation

- a high degree of pedestrian-vehicular separation, rather like the Radburn principle.
- based on high automobile use (1.5 cars/hh), 60% car utilization in the modal split.

runcorn

Runcorn - Significance to North Pickering

Community Structure

- community structure consists of 8,000 population communities divided into 4 2,000 person neighbourhoods: each neighbourhood composed of residential groupings of 100 to 200 people: community centres are along the public transit bus rights-of-way: each community has 2 elementary schools.
- 750,000 s. f. of climate-controlled shopping centre built in early stage of town development.

Open Space and Recreation

- integrated open space system.
- sports centre in town park at town centre.

Circulation

- public transportation provisions as a significant determinant of the urban form - figure eight configurations with town centre at the cross-point.
- bus systems on independent right-of-way with intersection priority.
- a balanced system of public and private transportation.

washington

Washington - Significance to North Pickering

Outline Plan

- town is conceived as a complex overlapping social and physical structure encouraging mobility, flexibility and choice.
- abandons rigid separation between working and dwelling places.

Community Structure

- a three-tiered system involving village centres, local centres and town centre: village centre a social nucleus.
- basic unit of residential area is the village of approximately 4,500 inhabitants.
- a radial system of footpaths within each village and linking villages.
- housing disposition in two subdivisions:
 - group - smallest social unit of 24 to 50 families.
 - place - 200-500 families with corner shops vending machines, child care.

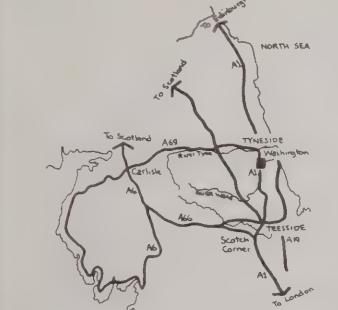
Circulation

- a grid-like transportation network.

Industry and Commerce

- industrial sites generating high traffic volumes and nuisance aspects in dispersed configurations at nodes of primary road network: balance of employment sites integrated with the Community.

REGIONAL CONTEXT



location - site lies in N.E. England close to the Tyne-side conurbation.

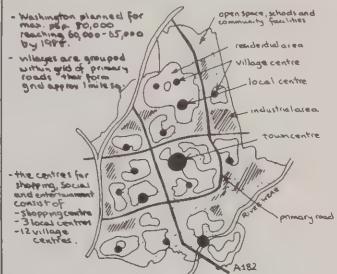
- much of the land adjacent to the site is already developed

over 1 million people within 7-mile radius of site.

topography - Pennine chain forms natural barrier to west; coastline to east produces N-S orientation.

selection - growing picture of increasing population, employment decrease, decline in industry.

OUTLINE PLAN



- Washington planned for 1960,000 reaching 50,000-55,000 by 1985.
- villages are grouped with nodes at each side of each road to form grid supporting route.

- the centres for shopping, social and administrative consist of:
 - Shopping centre
 - Local Centre
 - Residential centres.

- town seen as a complex overlapping structure - individuals belong to a range of different neighbourhoods for a range of different activities.

- transport network gives a balanced hierarchy suitable to movement more frequent in allocation of resources.

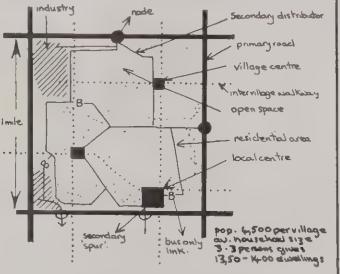
- basic unit of residential area is the village - 10 villages pop. 4,500 (parishes), 1350-14,000 dwellings and occupying areas of approx. ½ mile square.

- size of village determined by pop needed to maintain 2 form primary school.

- town and country - open spaces distributed throughout town; green belt planned north of town - 10% of site green belt.

- motor car - 1 car / dwelling + additional 0.75 spaces/dwelling for visitors - independent ped. system through entire town.

COMMUNITY STRUCTURE



- in concept plan is critical of rigid separation between working, living and leisure areas; employment, shopping and housing all running together provides greater social interaction.

- no longer felt to be socially relevant to break town into separate residential areas with fixed boundaries.

- shopping centre linked directly to 2 nodes on primary network.

- main bus station - Services is within shopping centre connected to primary network.

- 45 acres of car parking behind shops of service beneath are connected to primary network.

- Sports stadium - Pedestrian level - Parking

- Services

Section A

- facilities provided are health centre, lib., pubs, restaurants, offices, college of education and sports centre.

- admin. centre includes county and local offices, police etc.

- res. areas adjoining centre developed at high density (30pp).

- total shopping floor space 331,000sqft - ultimately 646,000sqft

- in each village total open space provided - 6 acres

+ additional 10 acres for parklands and general open space.

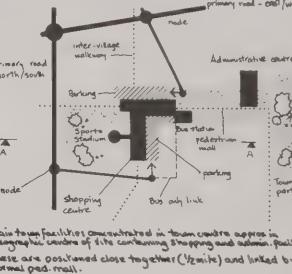
- residential area - developed as a park for local and regional use with facilities for both organised and informal sports and water sports.

- extends more than 2 miles

- sports stadium - located close to shopping mall, facilities for wide range of sports - Squash, Swimming, large sports hall

- provision for older games made in common room of each village

TOWN CENTRE



- main town facilities concentrated in town centre agree in geographical centre of the containing shopping and admin. facilities.

- these are positioned close together (½ mile) and linked by formal ped. route.

- shopping centre linked directly to 2 nodes on primary network.

- main bus station - Services is within shopping centre connected to primary network.

- 45 acres of car parking behind shops of service beneath are connected to primary network.

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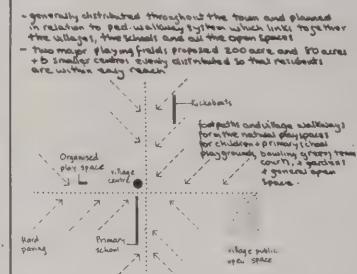
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- provision for older games made in common room of each village

OPEN SPACE AND RECREATION



- generally distributed throughout the town and planned in relation to pedestrian walking system which links together the village, the schools and all the open spaces.
- two major playing fields proposed 20 acres and 10 acres + b smaller courts evenly distributed so that residents are within easy reach.

- footpath and cycle paths for the reduced play areas for children + primary school playgrounds, sports grounds, country parks, general open space.

- in each village total open space provided - 6 acres

- + additional 10 acres for parklands and general open space.

- residential area - developed as a park for local and regional use with facilities for both organised and informal sports and water sports.

- extends more than 2 miles

- sports stadium - located close to shopping mall, facilities for wide range of sports - Squash, Swimming, large sports hall

- provision for older games made in common room of each village

Washington New Town

- 1960s development period 30 years.

location - N.E. England, close to Tyneside conurbation

size - 5,325 acres

population - ultimate target by 1980's 80,000

- existing pop. (1965) 20,000

- net inward migration (1967-75) 30,000

- natural increase of existing and migrant pop. (1968-2000) 30,000

Target pop. (1990's) 80,000

density - gross - 70,000/5325 = 13.5 p.p.a.

res. net - 70,000/1184 = 62.9 p.p.a.

devel. (total - 10% green belt) 70,000/472 = 147.9 p.p.a.

housing mix - largely 2-storey development

- emphasis placed not so heavily on houses to retain more on houses for sale

ultimately 50% rented 50% owner occupied

existing housing on site - 67,000, 20,000 pop. 25%

new housing for sale - 125,000 pop @ 6.4ppa. 1.25%

725,000 pop 10ppa. 9.7%

11,000 pop 40ppa. 14.75%

new housing for rent - 16,000 pop @ 10ppa. 2.7%

15,000 pop @ 10ppa. 18.75%

9,000 pop @ 10ppa. 11.25%

total programme 1960-2050 - 29,325

incl. return of 6,121 existing buildings.

% of dwell. in building types:

N.W. 18,170, 28,256, 38,293, 6,820, 58,971,

East. 18,170, 28,536, 38,503, 6,827, 58,971,

total 18,153, 28,252, 38,393, 6,827, 58,676

land uses

- residential - existing infill areas

61a 62a 13.5%

- industry - existing 320a new 468a

18,850a 35.2

- open space - play, parks, walking

674a 610a 10.6%

- playing fields 610a 10.6%

2,000a 2,000a 1.8%

- education - nursery 10a

primary 1,872a

special 7a

secondary 7,121a

further ed. 5a

- other - commercial, medical

1,000a 2,000a

recreational, leisure 2,000a

1,000a 2,000a 2.0%

- railway 52a

river and lake 76a

sewers 40a

reserves 317a

61a 62a 13.5%

5325acres

economic base - integral part of region, expected cross-connecting to neighbouring urban areas.

remarks - to be built in 4 phases over 30 years

1st completed 1972, pop. 60,000, incl. available green belt, regeneration - mid 70's 10,000 pop.

2nd phase 1978-80, 10,000 pop, 65,000 incl. by 1980's

3rd phase 1985-90, 10,000 pop, 70,000 incl. by 1985

4th phase 1990-2000, 10,000 pop, 80,000 incl. by 1990

Washington New Town Report, Cleveland - Oasis Works & Partnership Dec. 1981

CIRCULATION



primary network - forms a grid of roads

approx. one site spacing.

all presented from the primary system to the surrounding local and regional roads.

where changes in the primary network occur, there are grade separated interchanges.

access to the primary network is provided via 2 parallel sets of urban roads planned to run along each side of each town or grid.

these nodes are points of accessibility

every individual site within town is connected to the primary network through a 'node'.

nodes - these 16 points of mass accessibility are evenly distributed over the site.

secondary network - purpose of collecting and distributing traffic between the nodes and areas which they serve.

secondary network - comprehensive

pedestrian system of straight footpaths

linked (interlocking) via 100' footprints on 1/2 mile grid.

systems link the res. areas with each urban centre and pass over or under each road or grid.

bridges or under passes per sq. mile

public transport - principle of two

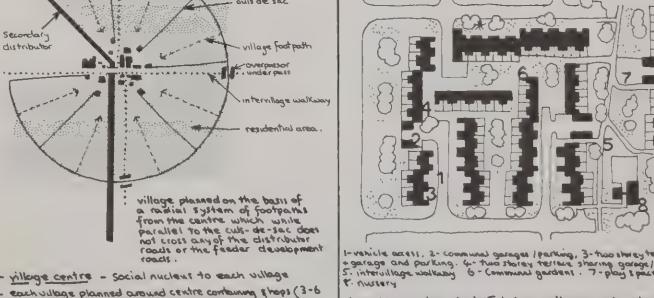
local services operating in res.

local services operating in res.

long distance services connect town with surrounding town.

both village and local centres are located at focal points on ped. / vehicular system to help sustain economic life and provide good access.

HOUSING



1=mobile access, 2= communal garage / parking, 3=house sites, terraced garage and parking, 4= three storey terrace, sharing garage/parking

5=inter-village walking, 6= communal gardens, 7= plug 1 pace

8=moving house layout at 15' distance with commercial garages

70% vehicle penetration, 65% of drivers with on plot parking, 10% of drivers with off plot parking per household, 14% of site covered by development.

private garages small (300ft²) but compensated by public or communal gardens - up to 50% per garden.

within each village, 2 sub-districts can be identified

group - small plot unit 20-50 families - formed around enclosed, fence private gardens.

place - very big but not 20-30 families

isolated - fence private gardens

place - very big but not 20-30 families

isolated - fence private gardens

place - very big but not 20-30 families

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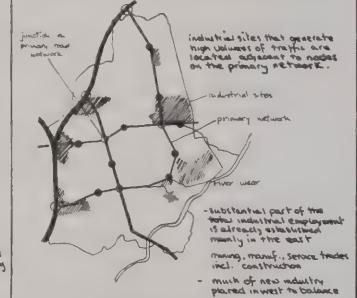
isolated - fence private gardens

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place - very big but not 20-30 families

INDUSTRY AND COMMERCE



industrial sites that generate high volume of traffic are located adjacent to roads located on the primary network.

industrial sites - existing infill areas

61a 62a 13.5%

- industry - existing 320a new 468a

18,850a 35.2

- open space - play, parks, walking

674a 610a 10.6%

- playing fields 610a 10.6%

2,000a 2,000a 1.8%

- education - nursery 10a

primary 1,872a

special 7a

secondary 7,121a

further ed. 5a

- other - commercial, medical

1,000a 2,000a

recreational, leisure 2,000a

1,000a 2,000a 2.0%

- railway 52a

river and lake 76a

sewers 40a

reserves 317a

61a 62a 13.5%

5325acres

milton keynes

Milton Keynes - Significance to North Pickering

Regional Context

- a new city of 250,000 population seen as a regional centre.

Outline Plan

- little attempt at detailed city structure
- strives for minimum effect of transportation and servicing infra-structure on future growth, change and flexibility.
- growth strategies fully expressed in the planning concept.

Community Structure

- a kilometre grid of primary roads loosely define residential areas of 200 to 300 acres accommodating about 5000 people.
- activity areas of residential components on the perimeter rather than central.
- social and physical structure departs from orthodoxy of introverted neighbourhood.
- residents relate to over-lapping catchment areas of different functions and interests.

Open Space and Recreation

- a major linear park; elsewhere, a sequence of linked open recreational spaces.

Circulation

- equal and universal accessibility via the arterial grid by public or private transportation.
- all arterials developed as totally landscaped limited access parkways.
- a considerable degree of pedestrian-vehicular separation.

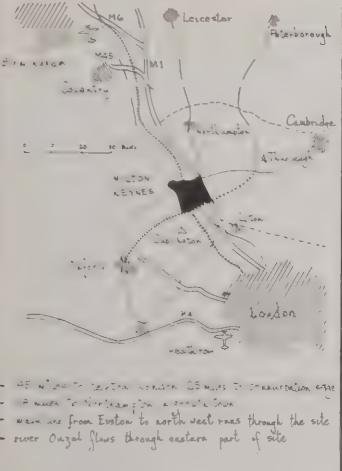
Industry and Commerce

- employment centres widely distributed.
- reserve sites for undetermined needs.

Education

- a 3 level, fine grained school system.

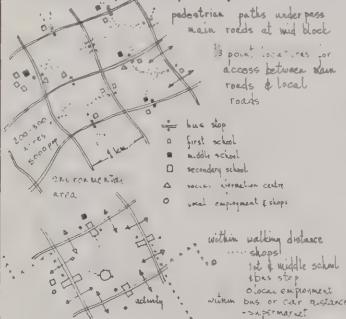
REGIONAL CONTEXT



OUTLINE PLAN



COMMUNITY STRUCTURE



- the social & physical structure of Milton Keynes departs fundamentally from the orthodoxy. In the previous neighbourhood unit system, residents relate to one's apposite catchment areas of different incomes and interests. Some are within walking distance and within short journeys by private or public transport
- The 1-kilometre grid of activity centres defines "functional areas" of some 200 to 300 acres and 2000 to 3000 persons (grouped). These will create overlapping flexible & varied communities

HOUSING



- central area housing, ultimate goal 3000 dwellings across 3000 people accross 1000 acres
- peak housing output 1800 dwellings/year
- street oriented urban living with direct access for car/ped
- variations in housing are of scale rather than character
- houses have up to 35 dwellings/ha
- permanent houses form permanent housing (part ②)
- house types: 1,2,3 story, pent, garage, etc. Site units are small
- 1-4 person flats at corners, family houses along avenues
- space is reserved in urban unit & corner sites
- Milton Keynes comprises a mix of professionals, managerial and skilled workers'
- Corporation conclusion: large could be made on increasing the proportion of rent housing since considerable proportion of the houses (owned by occupant) went to commuters

OPEN SPACE AND RECREATION



- a major linear park is proposed along the route of the River Ouzel near the town centre
- a large park on the canal near the new city centre
- objective sequences of land uses recreation, parks, etc.
- 20 acres of surface water, 10 canals, 10 lakes, 10 reservoirs, trees, vegetation, a number of open spaces
- several golf courses
- an aviary on the A45 will be developed as a tall, landscaped mark with

Milton Keynes 1967

location - 15 miles from central London
- 25 miles from the conurbation edge

size - 21,900 acres.

population - estimated 400,000
- intake 150,000
- natural increase 60,000
250,000

density - residential 15 p. acre
- net residential 30 p. acre

housing mix - shared units
- private units
- shared lower units

Land Uses

	acres	%	acres 000
residential	2870	.66	33
open space	2850	.63	2
industry	1970	.43	8
canals	500	.11	2
reservoirs, lakes, ponds	140	.03	.4
circulation	4470	.98	18
other	800	.18	4
orchards	500	.11	2
			21,800 .00 82

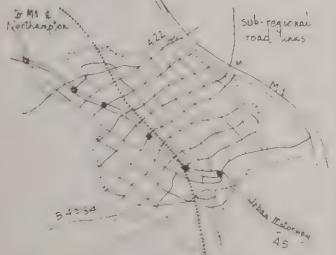
Economic Base

industries	27,000	in 1967	in 1967
at least 1000 workers	1000	will be available	
industrial plots	200	50	1000
industrial	23,000	487	244
commercial	5700	827	276
community services			510

references

- The Plan for Milton Keynes 1967 1962
- External Costs to the Metropolitan Area 1962
- Anderson, John, New Towns in Britain 1967
- Consultants 1962 Design 1967
- Various Papers from Foreign - most for Milton Keynes Development Corporation chairman Lord Campbell of Esk, N. S. Jones, Sir Alan Mainwaring, Mr. W. H. Stannard, Sir R. Keay

CIRCULATION



INDUSTRY AND COMMERCE

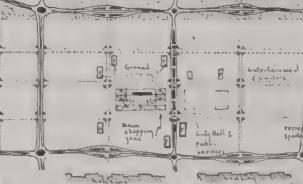


EDUCATION AND INSTITUTIONS



- educational sites using distributed resource works, 40% in rural areas
- proposed colleges includes city centre district centres and activity centres
- reserves > 100m from educational areas
- a 10 min. walk to an educational centre
- 10 min. to get to an activity centre as there are less people per square mile
- fair pool secondary opportunities
- Open University situated in Milton Keynes
- central & local libraries, youth centre for over 15,000 people

TOWN CENTRE



- the area is a commercial & service area as the city site is located on the raised bank the road which runs through the site, centre extends from the northern to the southern area. Total area is 250 ha. It features a system of spaces, buildings & routes
- business the concept is at ground level, for ease of growth and future expansion
- Process integration of site with surrounding residential and leisure room areas for future expansion
- Milton Keynes town centre will be the new centre of E. Anglia, the town centre
- centre to provide activities for 15,000 inhabitants. It is to be within walking distance for 50,000 people
- 25,000 parking spaces available
- included in the centre are shops, department store, post office, theatre, museum, gallery, sports centre, cinemas, hotels, pub, swimming pool, youth centre, amusement arcades

SERVICING AND GROWTH



- a sewer system "treat men" plan" discharges treated water into the Ouzel. Temporal plan on site for prior development before taking on high rainfall or storm water.
- for the first ten years of growth, there will be 25,000 people in a small band of development consisting of 5000 people in Blagrave. The main part will be taken over the 10 years & the main railway line is to be built during 1970-75. In 20 years time it will be larger, and there will be 125,000 people. This will be followed by a further 120,000 acres of industrial & office development, parks along Ouzel.

telford

Telford - Significance to North Pickering

Community Structure

- based on groupings related to social catchment areas.
- a hierarchical system ranging from local clusters of from 200 to 400 dwellings through community units of 8,000 population and into districts of some 24,000 to 30,000 people in combinations of 3 districts.

Housing

- an average residential density of 40 persons per net residential acre with densities up to 100 to 120 persons/net residential acre near central areas.
- 55% rental and 45% owner occupancy.
- 70% in 3 and 4 bedroom units.

Town Centre

- to be established early in the evolution of the town form.
- public transportation route integrated into town centre.

Open Space and Recreation

- a hierarchical arrangement of recreation facilities with:
 - 4 ac/1000 p. for playfields
 - 2 ac/1000 for local or neighbourhood facilities
 - 6 ac/1000 for large parks, golf, water features.

Circulation

- organized on basis of regional bypass, primary large volume high speed roads, district distributors of large volumes, lower speed and local distributors of low capacity. Local access roads semi individual properties.
- public transit links residential areas to central area and main employment and recreation points, proposed future transit use of existing rail route.

Education

- primary schools serving 4000 population and comprehensives 12,000.

Industry and Commerce

- assumes 30 workers per industrial acre.
- a shopping hierarchy of main, district and local shopping
- industrial estates organized for various characteristics.

Growth

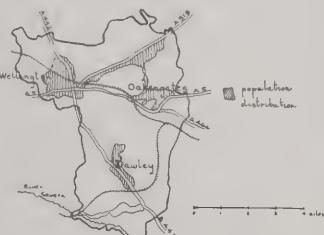
- 6500 to 6700 persons/year average growth;
2000 dwellings/year
- specific growth phasing only for first ten years,
20 years completion
- leaves agricultural land in use in major areas
of plan for 10-15 years.

REGIONAL CONTEXT



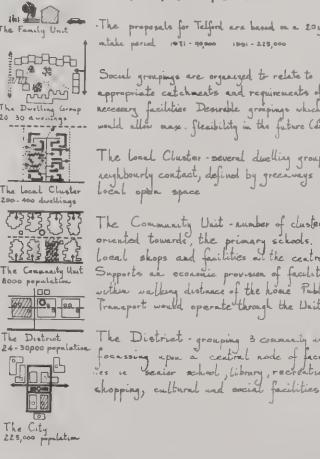
- Telford lies on the River Severn, 30 miles northwest of Birmingham, but only 10m from the edge of the Black Country conurbation.
- Telford is an important centre of the West Midlands Basin.
The existing area centres at Dudley, Wellington & Oldsway, forming a scattered urban complex related to the Coal-bowder axis.
- Within an important agricultural area, Shrewsbury is its chief administrative & service centre, though Wellington has an intermediate function as a market & service centre.
Physical Setting - broken, small ridge (range up) to the West, Severn Gorge to the South. Rugged landscape due to mining; difficulties to development.

OUTLINE PLAN



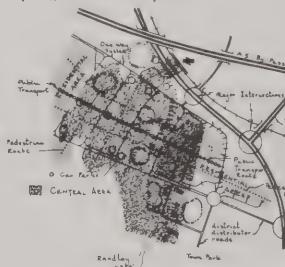
The existing urban fabric is a major determinant of the future form of the city.
- 60,000 population is distributed over a loose spread of settlements: 4,000 live in the large centres, Wellington & Oldsway (over 10,000 each). Towns are linked by an absorbing mass of small townships clustered along the main road A 382 & B 48.
Town plan based on an extensible primary grid with a distribution of attraction and generation uses to obtain a balanced urban economy transport system.
- review and re-development of existing areas to proceed in accordance with new development.

COMMUNITY STRUCTURE



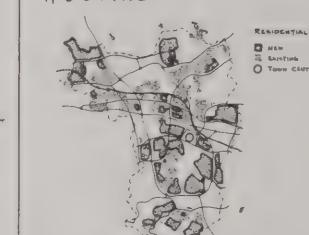
The Community Unit - number of clusters, orientated towards the primary schools, Local shops and facilities at the centre. Supports an economic pattern of facilities within walking distance of the home. Public Transport would operate through the Unit.

TOWN CENTRE



The Town Centre is based on a grid circulation system. Main ring of peripheral distributor roads encloses 150 acres area. Boundary network of rec. way local distributors.
Land Requirement: 1981, Shopping - 16.6a, Office - 2.0a, Other - 11.9a.
- Centre to be established early to create focus & a platform for the introduction of city scale facilities.
- Central Area Floor Space Total by 1981 2,000,000 sq ft
- Car Parking for 6,000-8,000 sq acres. (includes 4 story structures)
- Segregation of vehicles & pedestrians

HOUSING



Average Residential Density 40 persons/acre & up to 100-120 persons/acre near & around Central Area.

Average increase of 2000 houses/or (for 20 years)
- programme is 55% rental and 45% owner occupied housing
- by 1981 2.4 person households to account for 76% of total. 1/3 of these 60% would be Migrant and 30% Nuclear households.

Housing measures to include:-
- 600 sq ft garden/house
play space 20-25 sq ft/person parking 2.5 sq ft/dwelling.
- 70% of total dwellings would be 3-4 bed rooms.
- implications of annual 3% higher private ownership are that the Corp will have to step in and develop sites of private developments left behind established programme.

Telford

Location - 30 miles N.W. of Birmingham E.
10 m. from edge of conurbation.

size - 19,240 acres.

population - existing 69,000
- migrant 136,000
- natural 20,000
increase _____
- total - 1981 225,000

density - developmental 11.6 p/acre
- net residential 33.4 p/acre

housing mix - 70% of dwellings 344 BDR
at 15 dwells/acre for rentals
at 10 dwells/acre for private

Land Uses -

	1966	1981	%
Land Use	acres	acres	
residential	3220	6720	35
OPEN SPACE	570	3500	18
defence base	570	530	2.5
INDUSTRIAL & COMM.	540	940	10
EDUCATIONAL	440	30	5
roads & transport	380	230	11
AGRICULTURE	10,040	2500	13
CENTRAL AREA		160	-
OTHER		630	33
Total		19,240 acres	

ECONOMIC BASE

- Manufacturing is predominant element in economy with over 50% employ. Telford is & will continue to import labour.

REFERENCES

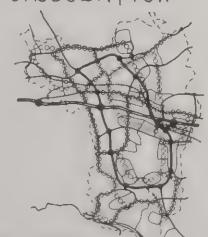
- Telford Development Proposals Volume 1 - a report to Telford Development Corp. 1969
- Consultants - The John Madin Design Group in association with Economic Consultants LTD, Freeman Fox, Smith Assoc. Telford Development Corporation Chairman - Sir Frank Price Kt. F.S.A.V.A. Priory Hall, Telford Oakengates, Telford

OPEN SPACE AND RECREATION



Recreation facilities and open space are proposed on a tiered system (see above) to serve area needs and are organised to the comparative significance of the particular facility.
- the establishment of a country park along the Severn Valley stretching from Wrekin to Telford due to its natural beauty.
- the establishment of a country park along the Severn Valley stretching from Wrekin to Telford due to its natural beauty.
- the development of a tourist and recreational outlet in which Telford can play a substantial role through the development of open air museums, indigenous crafts and tourist attractions.
- 12 acres of open space/1000 population.
recreational - 4 acres/1000 - playing fields, adult recreation residential - 2 acres/1000 - greenways, local children's play other - 6 acres/1000 - parks, gardens, water features

CIRCULATION



Road Structure
- Regional - 50-60 B.P. by Post C. & connecting to the motorway system.
- Primary - a major road - large areas high speed long distances
- District - extensive range routes, short speeds short journeys
- Local - 1.5 times low capacity routes within the district
000 Public Transport
- To separate traffic by speed & type, the road pattern is based on a hierarchy of primary, district and local distributors with local access roads providing access to individual properties.
Public transport services running through the centre of residential areas and linking with the Central Area, main employment areas, and major recreation parks.
- future Urban rapid transit based on existing east-west rail route.
recreational - 4 acres/1000 - playing fields, adult recreation residential - 2 acres/1000 - greenways, local children's play other - 6 acres/1000 - parks, gardens, water features

EDUCATION AND INSTITUTIONS



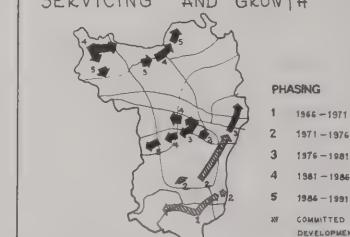
University
College of Education
G.C.E. & Secondary
Comprehensive
Primary
G.C.E. Comprehensive
R.C. Primary
Senior
Middle
G.C.E.
Private
Boarding
Stable education & recreational facilities are grouped at social nodes, principally at the district level.
- City scale of growth will support the introduction of higher education facilities, a college of education, polytechnic or a university.
- 2 adult education centres, one associated with the Central Area, one in employment areas, and major recreation parks.
- future Urban rapid transit based on existing east-west rail route.
recreational - 4 acres/1000 - playing fields, adult recreation residential - 2 acres/1000 - greenways, local children's play other - 6 acres/1000 - parks, gardens, water features

INDUSTRY AND COMMERCE



Major concentrations of workplaces are distributed to provide for the differential location requirements of the various economic activities involved.
- Employment is expected to grow from the present 35,000 to 99,000 in 1981, over 20% in manufacturing, 20% in new centres & 52% in defence.
- Telford is at present a small exporter of labour & will begin in 1971.
- Gross density 30 workers/acre.
- Total gross floor space of retail, office and general service buildings of 45 ft. 2. Major hierarchy of shopping centres, main, district, local - distributed over the structure in relation to accessibility catchments & road groupings.
Halesfield - general industry - 4,500 - not requiring central locations.
Stafford - prestige firms requiring central locations & distribution - 3000.
Leyesbury - major industrial estate trades - 2000 acres
Lightfoot - low density, open space storage - 150 a.

SERVICING AND GROWTH



Growth - framework for implementation flexible based on economic circumstances.
- specific proposals for phasing only for first 10 years.
- complete project in 20 year span.

The phasing strategy for development by the Corporation would concentrate in the southern area by developing around the Central Area, Priory Hall before commencing major development new hilltop advantages agreed land in use for re-generation of central zone early, development of disturbed land at Dudley.

Services - possibility for district heating, coal boiler made likely.
- few new sewage disposal works are required; one in the north, one in the south to serve the whole area.
- new major railway line in extension to services & some re-development in the north.

**SCANDINAVIAN
NEW TOWNS**

2

PART 2: SCANDINAVIAN NEW TOWNS

Scandinavian planning has emphasized the rational accommodation of metropolitan urban growth rather than its decentralization. Thus Scandinavia's policy of directed big city growth and Britain's policy of decentralization present two very different reactions to concentration. Stockholm, Helsinki and Copenhagen are by far the largest urban areas of their respective nations, yet even so they are of moderate size, so as a national necessity they must be made to work. As a result, the capital regions have plans to direct future metropolitan growth along an axis of development which will still protect recreational areas and avoid urban sprawl. New communities in these plans serve to direct and accommodate the axial growth system. Consequently, they are conceived as integral units of the larger metropolis, much like a new subdivision and as such are not meant to be self-sufficient. It follows that they are located in close proximity to the parent city - Albertslund is 10 miles from central Copenhagen; Tapiola is 6 miles from the centre of Helsinki, new Stockholm related communities are from 6 to 10 miles from the central station of the Tunnelbahn public transit system. All these communities (except Tapiola) are on mass transit lines. The Swedish communities like Faarsta and Vallingsby are developed around transit stations with easy pedestrian access. High density housing is located near the stations and low density housing in outer areas.

There is little effort to attract industry and employment to the new towns so adequate transportation elsewhere is very important. Town centres are small and of a basically convenience nature. These Scandinavian communities are generally small -- Albertslund-30,000, Tapiola-17,000; and around Stockholm, communities are generally of 15,000 inhabitants clustered in new town groups of 60,000 with a main centre in one of the units. The present tendency is towards larger size units. Denmark anticipates new town sections of up to 250,000. Stockholm proposes sub-communities of 40,000 to 50,000 collected into groups of 200,000. It may be asked whether these larger sized town forms will alter the relationship of the new units to the central metropolis.

In Scandinavia generally, local authorities are responsible for the preparation of land use plans subject to the approved master plans prepared by the central government. Consequently, local authorities plan and initiate new communities in Denmark and Sweden, while in Finland, Tapiola was initiated and developed by a private cooperative in conformity with Helsinki's development plan.

Stockholm is fortunate in that over the last 60 years it has purchased most of the land immediately surrounding the city, a rare example of foresight.

In Sweden, municipalities have major powers to assist them in acquiring urban development land at a reasonable price:

- only the municipality has the right to use land for urban purposes
- special authorization must be obtained from the municipality to purchase agricultural land for conversion to other purposes
- Swedish law holds that all land other than land directly associated with a building is open to everyone on condition the property is not damaged
- all municipalities have extensive expropriation powers for purposes of urban development

In Stockholm, once the city has established the master plan and acquired and serviced the land, it designates other authorities to draw up and execute detailed plans. These are frequently non-profit or cooperative municipal building associations but may be private companies. Land is leased for 60 years to these societies.

The city largely retains control over tenant selection from a waiting list system. These non-profit and cooperative societies may build amenities normally the responsibility of the state, and these are later resold or rented to the appropriate government authority.

In general, Scandinavian towns are remarkable for their architectural and landscape quality. In this regard, Tapiola is outstanding.

scandinavian new towns

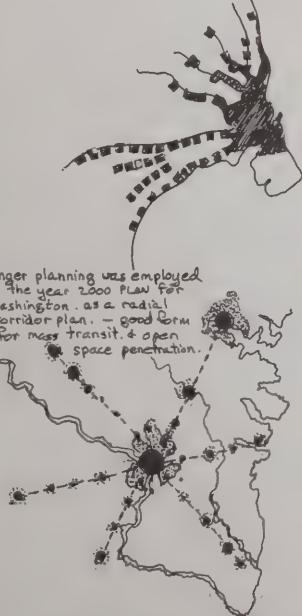
Scandinavian New Towns - Significance to

North Pickering

- Scandinavian new town endeavours stress the rational accommodation of inevitable metropolitan growth rather than urban decentralization.
- this growth is usually directed along development axes protecting recreational areas and avoiding urban sprawl.
- housing forms are seen as positive design elements in the urban environment.
- trend is to large growth units of up to 250,000 people.
- efficient rapid public mass transit connecting to the metropolitan centre.

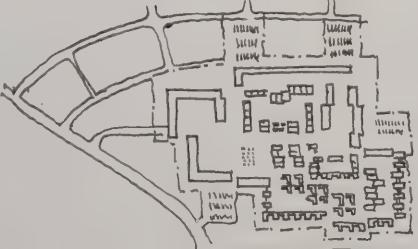
DENMARK COPENHAGEN'S FINGER PLAN

- This concept, of a regional nature, envisages checking growth and constraining its natural development along axis served by suburban public transit & separated by guaranteed open spaces.
- Based on new town sectors of about 250,000 pop, each, absorbing regional growth over a decade.
- Sectors of this size could hope to attract tertiary employment.
- Each sector would not be self-sufficient so transportation diversity is important.



TAPIOLA a garden city of great architectural and landscape beauty.
on the edge of Helsinki, Finland.

- Finger planning was employed in the year 2000 plan for Washington as a radial corridor plan. - good form for mass transit & open space penetration.



T18

Site plan for Brittgarden Sweden
- 3 to 5 storey multi-family structures + 300 apartments and some 50 single family units. Community is surrounded by 5 storey apts on pilotis on 2 sides.

VÄLLINGBY

GENERAL PLAN

TOWN CENTRE



12 miles from central Stockholm
constructed by Svenska Bostäder
2/3 of working pop. have jobs
outside Vällingby
youthful population - 40% under 21 in 1964
6 trains/hr during day; 30 min. to
centre of Stockholm
low unemployment rate, limited social life -
centred on road transit station, with
density housing near station.
housing mix - 10% singles.
70% 3 story walkups
20% in elevator apartments
designed by Backström & Reinius.

- Vällingby Centre serves a cluster of districts totalling about 60,000 people. (150,000 indirectly).
- 19,000^{m²} of shops, total area 40,000^{m²}.
- 2300 car park spaces anticipated - 70 clubs of Vällingby.
- rapid transit passes directly under the centre as does service trucking.
- 2000 jobs at centre including offices.
- large plaza at centre.

SCANDINAVIAN NEW TOWNS

- Scandinavian planning has stressed the rational accommodation of metropolitan growth rather than urban decentralization.
- The capital regions of Denmark, Finland and Sweden plan to direct growth along axes of development protecting recreational areas and avoiding urban sprawl.
- New communities conceived as integral units of the larger metropolis and by no means self sufficient are developed along these axes, close to the parent city. All are on mass transit lines whose stations are their focus.
- Present communities are small in size (15,000) Tend to larger units up to 250,000.
- In general Scandinavian towns are remarkable for their design quality: Tapiola is outstanding.

SOME EXAMPLES OF SCANDINAVIAN HOUSE



- Örebro-Baronbackarna. low rise residential structures enclosing wide protected open spaces - meander shaped plots form courts in turn connecting to a large central green. Outer courts for parking. (1972)
- a neighbourhood unit in size & structure with a day nursery & a school for first three years + local shops.



Tyresö Njuphärsber
1966

- feeder road, parking space and dwellings a ribbon that wraps around a hill.
- curved 6 to 8 fl structures encircle car free space with day nurseries, kindergartens and playgrounds.
- parking courts on levels.

**NETHERLANDS
NEW TOWNS**

3

PART 3: NETHERLANDS NEW TOWNS

The three largest cities of the Netherlands, Amsterdam, Rotterdam and the Hague, encircle a generally open agricultural environment accessible to all these cities. These three cities constitute the Randstad area of Western Holland with a combined population of approximately 3,000,000 persons out of a total population of 6,400,000. Planning policy is to limit the growth and expansion of Randstad while slow growth of stagnant areas elsewhere is revitalized. The Dutch new communities are of two types - those designed to accommodate and direct the urban growth of the Randstad cities (e.g. Bijelmermeer in south-east Amsterdam) and new communities designed to develop recently recovered polders (e.g. Lelystad in East Flevoland).

The policy of retaining the centre of Randstad as a green space requires outward growth of the conurbations. To do this, new "sectors" of the cities have been developed along proposed axis. These new sectors are in reality new towns in planning and design. In addition, a few overspill towns are being constructed some 20 km outside Rotterdam and Amsterdam.

These Dutch sector towns recall the Scandinavian new towns in that they are built adjacent to the urban area and will be connected to it by metropolitan transit facilities. As in Stockholm, the transit stations often serve as the focus around which the community is planned. New sectors currently house from 70,000 to 200,000 people.

Lelystad, a new polder town is intended to house 100,000 people.

The Netherlands is a unitary state with 3 levels of government - the central government, 12 provinces and some 900 communes. Land use planning and town planning responsibility is shared among them with the central government preparing reports on land use and general national development; within these guidelines, provinces prepare regional master plans subject to central government approval. Local authorities prepare detailed plans.

Implementation is the responsibility of the detailed planning level of government, usually local authorities or polder agencies. In this system, Amsterdam and Rotterdam have prepared plans for their regions which call for the development of "new sectors". Upon approval by the province concerned with these plans, the city administrations are responsible for their execution. New communities in Stockholm, Amsterdam or Copenhagen which were initiated by the cities themselves had their plans prepared by the planning departments within the city administrations. However, Lelystad in the Dutch polders commissioned a town planner to design the community because the initiating authority did not have adequate planning capability.

**netherlands
new towns**

Netherlands New Towns - Significance to

North Pickering

- as with Scandinavian and French new town developments, Dutch new communities are built as continuations of existing conurbations and connected to the parent city by metropolitan transit facilities.
- transit stations serve as foci around which the community is grouped.
- 2/3 of new polder town housing is subsidized for workers.

REGIONAL CONTEXT.



The three largest cities of the Netherlands encircle a generally open agricultural area. This environment constitutes the Randstad of Western Holland with a combined population of 3,000,000 persons out of a total of 6,400,000.

To retain the centre of the Randstad as green open space requires outward growth of the conurbations.

This growth generally takes the form of new "sectors" developed along proposed axis.

In Heveland polder, for example Lelystad of 100,000 inhabitants is under construction and a beginning has been made on Almere for 120,000 to 250,000 inhabitants. Secondary centres like Dronten supplement the main towns. Emmeloord of 8,000 people is such a secondary town.

In addition to metropolitan sectors and polder towns, a few overspill towns are under way.

THE EXPANSION OF AMSTERDAM.

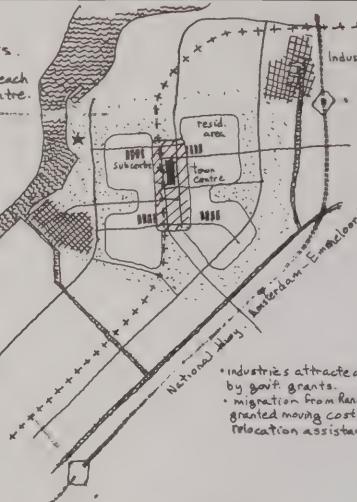
- the master plan of Amsterdam shows the location of the post-war garden city expansion sectors of Amsterdam West, Amstelveen and Bijlmermeer, each of approx. 100,000 population in current proposals
- offices are being decentralized from the crowded old core
- these Dutch sector towns recall Scandinavian new towns in that they are built as continuations of the urban areas & will be connected to it by metropolitan transit facilities and high speed highways. Transit stations serve as foci around which the community is grouped.
- Rotterdam's Pendrecht sector, of 6,000 dw. + 21,000 people, consists of a repeat residential unit of approx 1 hectare. Unit consists of 1, 3 or 4 fl. flats with communal gardens + play spaces constituting 6% of the housing, 24% individual terrace houses + 8% elderly flats. Population mostly middle class fairly high income workers, young, twice child population of Rotterdam, few elderly. Buildings constitute 75% of unit area, roads 16%, open space public 4%, private 12%. Density 60 ph. in the res. units; 45 ph. in the overall sector. anticipate 60% public transit modal split from city to sectors.

- Bijlmermeer will have 100,000 inhabitants on 2,250 ac of residential, 625 ac of industrial sites, 1,125 ac recreation, 500 ac offices + sociocultural amenities.
- first Dutch new town with pedestrian-vehicular separation - motor traffic confined to a system of elevated roads + parking decks.
- 2/3 of housing is subsidized for workers.
- within urban areas, 45 mph expressways, link sector to city.
- junctions of Y-m intervals, 3 lanes each way, 30 mph. collectors 2 lanes each way w/light controlled intersections, gives a 1/2 m. grid. local roads 30 mph as neighbourhood streets.
- single lane each direction. Cycle grid 600 yds: ped. grid 200 yds.



LELYSTAT A POLDER NEW TOWN OF 100,000 INHABITANTS.

- Four 25,000 pop. residential areas each with a sub-centre, plus a town centre.
- special routes at later date for public transit.
- segregation of motors, cycles + pedestrians.
- greenbelt of trees + recreation areas surrounds town.
- 1st stage is 70%; one family units + 3 story flats.
- housing groups of 40s to 600 dw.
- growth to date approx. 2,000 per year.
- unique health program.
- no high rise housing.



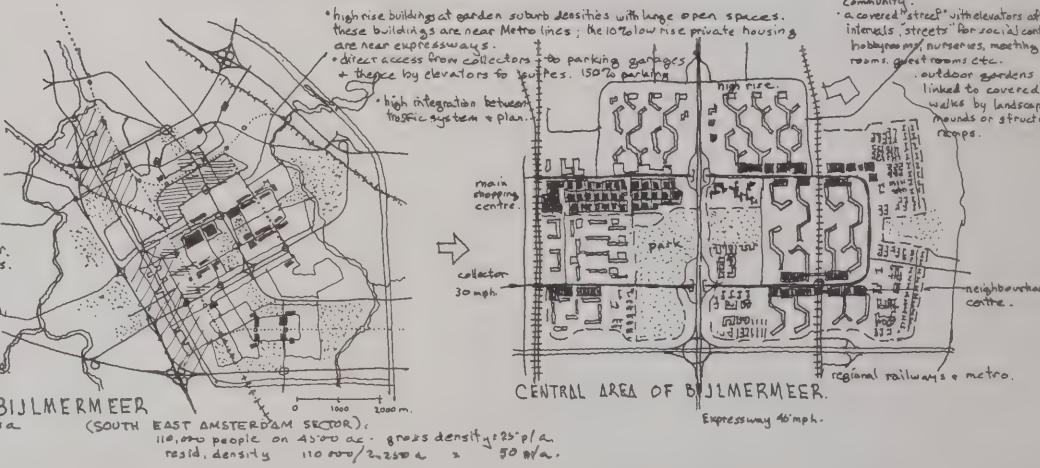
NETHERLANDS NEW TOWNS

- Dutch new communities are of two types:
 - those designed to accommodate and direct the urban growth of the Randstad cities, Amsterdam, Rotterdam, The Hague, etc.
 - new communities as centres for recently recovered polders, as for example Lelystad in East Flevoland.

- The Netherlands is a unitary state with three levels of government - the central government, 12 provinces, and some 400 communes.
- Planning responsibility is shared among them - central government prepares policies on general national government and consequent land use; provinces prepare matching regional master plans; local authorities produce detailed plans. Implementation is by local authorities or polder agencies.

Housing at Bijlmermeer

- 9 to 16 fl. apts.
- building forms to structure the community
- a covered "street" with elevators of 65' intervals, streets for social contact, hobby rooms, nurseries, meeting rooms, great rooms etc.
- outdoor gardens linked to covered walkways by landscaped mounds or structural steps.



CENTRAL AREA OF BIJLMERMEER.

Expressway 45 mph.

(SOUTH EAST AMSTERDAM SECTOR):
110,000 people on 4500 ac. gross density: 25 ph/ac.
resid. density 110,000/2,250 ac = 50 ph/ac.

**FRENCH
NEW TOWNS 4**

PART 4: FRENCH NEW TOWNS

French regional planning policies have designated eight urban areas outside of the Paris region to act as "metropoles d'équilibre". They are intended to counteract the attractions of Paris by establishing regional growth centres. For example, Lyon and Marseille, the two largest cities next to Paris, have been designated as "metropole d'équilibre". It is not known to what extent new communities will be involved in developing these equilibrium areas. However, major new sectors to existing cities and the establishment of new towns on axis of regional development will both be required. Most significant, new community developments in France will undoubtedly be those to accommodate the growth of Paris and Lyon. Thus, although they exhibit many of the characteristics and motivations of Scandinavian new communities, their large size will make them far more independent of the metropolis. New communities around Paris will house from 300,000 to 500,000 people and those around Lyon will accommodate 150,000 to 300,000 inhabitants.

The Paris region plans propose 8 new towns of which 3 have presently been approved. The towns are on two east-west axes of development, one axis on the plateau north of the Seine Marne river system and the other on a similar plateau to the south. The new communities are within 30 km of the outskirts of Paris and some are adjacent to presently built-up areas.

Unlike Scandinavian new towns, those in France provide substantial employment capability, but unlike the British new towns there is no attempt to link employment to residence in the town. Jobs are provided for 75% to 90% of the work force; it is anticipated that 1/2 to 2/3 of the resident labour force will be employed within the new town.

The central government may designate certain areas "zones d'aménagement différé" (ZAD). In such zones, the state has prior purchase rights where owners have signified their intention to sell, thus giving the state the opportunity of acquiring land at its price before the institution of the ZAD. A considerable extent of the new town areas around Paris have been declared as ZAD.

The general characteristics of new town planning in the Paris region might be summarized as follows:

1. the urban centre assumes a major role - powerful centres of employment and amenity for the population of the new town and for the restructuring of the life of the adjacent existing suburbs.

2. leisure provisions are of great importance - leisure provisions both natural and man-made will recognize the increase of leisure time and the need for leisure activities which will be quadrupled by the year 2000.
3. a balance is sought between town employment and resident population - here the main uncertainty concerns the possibility of attracting office and tertiary employment as well as work requiring frequent contacts and exchanges of information.
4. the importance of transportation is stressed - the new towns must respond to an automobile age but limits must be set to its use for reasons of cost, pollution and a livable environment. Separation of motor and pedestrian traffic is a necessity. In all cases it is thought necessary to ensure choice between different transportation modes.
5. flexibility is considered rather secondary to careful long-term planning

**french
new towns**

French New Towns - Significance to North

Pickering

- new town growth seen as a matter of optimizing inevitable metropolitan growth
 - a planning philosophy of accommodating and directing urban growth rather than decentralization or establishing additional regional centres.
- ensure validity of each stage of growth as a socially and physically valid and complete form.
- emphasis on leisure provisions for future society.
- Toulouse le Mirail proposes a townform utilizing high density and high rise housing forms over a pedestrian deck - a kind of high density landscape.
- utilizes architectural forms as town design determinants.
- decked separation of vehicular and pedestrian environments.
- town forms to favour meetings and exchange.

FRENCH NEW TOWNS

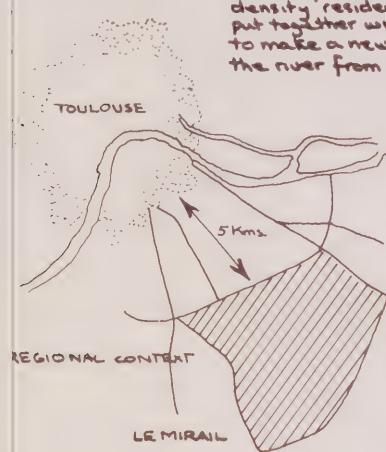
TOULOUSE LE MIRAIL

961 CANDILIS, JOSIC AND WOODS

SIZE - 750 HECTARES (1852 ACRES)
5Kms (3.1 miles) from centre
of Toulouse.

POPULATION - 100,000 increasing population
of old city by 1/3.

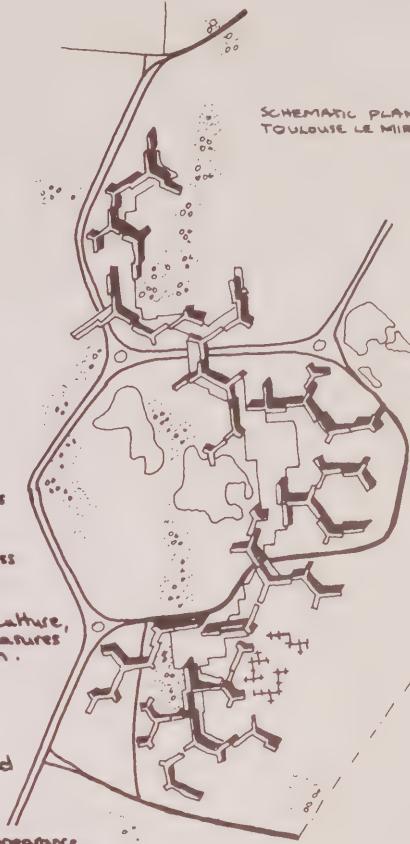
OUTLINE PLAN - plan is essentially a kind of density landscape - a residential high density residential living strip, put together with the road system to make a new structure across the river from the old city.



- concentration of apartments into strip allows safe walking distance to shops and play spaces, lots of parking, easy service access and a sense of place and connection.
- the setting for an urban culture, urban forms and urban pleasures for the whole population.

CONCEPT

- a zone of high concentration and density of collective life
- purpose to re-establish the street as the primordial function of urbanism - disappearance of street as just a 'road passage'!



linear composition; street centred and being the domain of the ped. the street becomes the active centre in which different activities are localised and immobilised in predetermined places.

apt. housing; high/medium/low; shops, stores, markets, cafés; churches, lecture halls, theatres; commercial and admin. buildings; public buildings, post offices; and social buildings; streets, walks and squares; closed passages, gardens and open views.

centre of gravity of urban structure is at the Capitole, the structure ends at the commercial and admin. centre which will include activities of regional interest.

INCUBATION - principle of full separation of ped. and vehicular movement

zones of high concentration of activity and density relate to main parking areas allowing access to all competing elements. as zones of activity and density become the 'generators' of the city life, the networks of cars and ped. become the 'generators' of the competing elements, without imposing upon them any plan or shape.

COMMUNITY - town divided into sectors - Mirail - Bellefontaine, Mirail - Reynierie, Mirail Université.

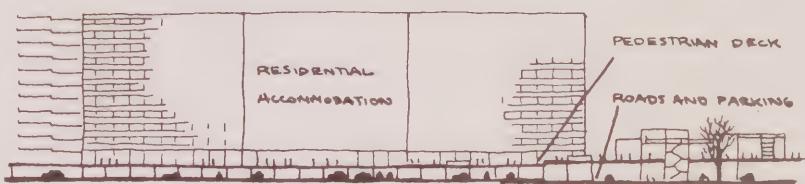
typical sector - Bellefontaine contains commercial centre with a group of 30 shops as well as essential services such as doctors, dentists, medical surgeries, banks etc. (assumed pop. 20,000-25,000 persons)

Each of the sectors is linked to its neighbours by a deck that is equipped with its own commercial centre and services.

HOUSING - possible to rent or buy housing of varying price from local authority to private flats/houses.

variety of building form of 4, 6, 8 and 14 storeys - balconies back and front for winter and summer use.

individual houses (singles) built at ground level, have provision to add an extra storey as family grows bigger.



Separation of traffic and pedestrians. Roads and parking are underneath a pedestrian deck which forms a vast walkway over 5 Km (12.35 miles) long and restores street to its original function.

LANDSCAPE ZONE - linear succession of landscaped zones for public use, - a succession of arrangements encompassing historic monuments, ecological and morphological elements and landscaped for walking, relaxation and physical exercise.

- follows and encircles at different distances the linear centre to which it relates together with the road network to create a permanent urban structure.

PERIPHERAL ZONE - urban structure is surrounded by a peripheral zone of residential character and low density.

- area composed of 'gatherings' of small 'collectives' (2, 3 or 4 levels) surrounded by areas reserved for individual dwellings or row housing. Zone also contains some small commercial centres and nursery schools - these schools are centred in different 'gravities' of habitation.

- this zone assumes the role of transition between the centre with an urban character and the neighbourhoods with half-urban character.

- a series of little factories at the southern limit complete demands of program.

REMARKS - Toulouse le Mirail is an example of part of the french metropolitan growth program that stands apart from the Paris Regional plan.

- Candilis aims to break with the architectural forms and layouts that have earned the grands ensembles reputation for lack of inspiration, and create surroundings favouring meeting and exchange.

French New Towns - Significance to North

Pickering

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- decked separation of vehicular and pedestrian environments.
- town forms to favour meetings and exchange.

**AMERICAN
NEW TOWNS 5**

PART 5: AMERICAN NEW TOWNS

In the United States, land of private enterprise, it is not surprising to find most new community projects privately rather than publicly initiated. Pierre Merlin presents a perceptive statement on the American situation:

"The federal system and the doctrine of free enterprise are the two main causes of a dearth of planning on a national scale . . . What planning there is is confronted by many problems: unregulated urban expansion, problems of transport in towns where the motor car reigns supreme, and racial segregation of residential areas and facilities. All this added to the limited powers of any bodies entrusted with regional planning gives prime importance to the smallest local authorities, the counties and towns. For these reasons the new towns of the United States reflect local problems rather than any policy of regional development."

It is thus the country in which the relationship between metropolitan and regional planning is the least associated with new community developments (Only Reston seems to have been designed in conjunction with a regional plan developed by government authorities). Again according to Merlin, the location, size, urban form and other characteristics of American new towns are at best a subject of discussion between the developer and the local authorities responsible for zoning and the provision of certain infrastructure facilities. All this may partly explain why the "garden city" conception of new town development has so long been prevalent and dominant in the USA as it is the only concept reasonably well-adapted to operate without regional planning and government direction. Such development is primarily concerned with acquiring "the right spot."

Yet, in spite of these limitations, America has provided and continues to provide ideas and ideologies about planning that fundamentally and internationally affect planning concepts. The accomplishments of the Tennessee Valley Authority in the social, economic and environmental aspects of regional planning and development still remain the yardstick by which all similar attempts are measured. The American architect/planner Clarence Stein and the planner Henry Wright developed physical planning ideas about living environment "in which people could live peacefully with the automobile" which throughout the world today bears the name of the Radburn Principle. The plan is based on residential superblocks wherein there is complete separation of pedestrians and automobiles. In the centres of the super-blocks are large open landscaped spaces for active and passive recreation reached by fingers of pedestrian pathways on which the dwellings face. Pedestrian walkways in turn join block to block, underpassing the block boundary streets and leading to schools and community facilities. Roads are hierarchically planned for specific purposes: - service lanes or courts

for direct access to residential properties, secondary collector roads around the superblocks, main through roads and express highways. It is doubtful whether in the forty-six years which have elapsed since Radburn was conceived that any social/physical planning idea has been as significant. The development of Wright and Stein's perceptions about community form from Sunnyside, New York to Chatham Village, Pittsburg, to Radburn, New Jersey and on to Baldwin Hills Village, Los Angeles, is a major proposition of American planning philosophy.

Again, it was in America that the neighbourhood unit theory was most fully developed, perhaps initially by Clarence Perry. In spite of misgivings about its parochial limitations and the impositions upon it by others of an unwarranted social burden, this simple idea about a scale of unit permitting traffic segregation, pedestrian safety, child-school relationship and the more modest dimensions of social interaction, survives, under new terminologies of course such as "environmental precincts", "activity centres", etc.

It was in the mid-thirties greenbelt towns of the Federal Resettlement Administration (Greenbelt, Maryland; Greenhills, Ohio; Greendale, Wisconsin) that there occurred the first combination of the three basic ideas of community social-physical design - the Garden City, the Radburn Concept and the Neighbourhood Unit.

As with many other federal systems of government, it is the states in the U.S. which have the constitutional allocation of significant powers for land use planning and community development. In 1968, the State of New York established the Urban Development Corporation as an independent public benefit corporation. UDC can carry out low, moderate and middle income housing, industrial development, blighted area redevelopment, the provision of educational and social community facilities, and in combination with these activities, the development of new towns. The Corporation has statutory powers to oversee local zoning and building regulations. There are problems of a jurisdictional nature and of a community participatory nature. The UDC has initiated three new community projects.

- a new-town-in-town for Welfare Island, New York City
- Lysander New Community near Syracuse
- Audubon New Community near Amherst

The state is concerned with directing urban growth to avoid urbanization of its most fertile lands and to avoid impossible over-concentrations. The advent of these state-sponsored communities could well presage a new thrust to town construction in the U.S.A. By 1971 HUD had announced its support for a number of such communities.

L THE NEIGHBOURHOOD UNIT.

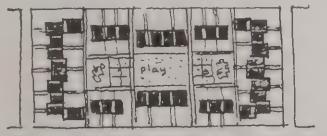


THE NEIGHBOURHOOD UNIT AS SEEN BY CLARENCE PERRY
as reproduced in the New York Regional Survey, Volume 7.
1929.

Clarence & Perry's treatise "The Neighbourhood Unit, a Scheme of Arrangement for the Family Life Community" was the first comprehensive statement of an idea which, in less socially loaded interpretations, continues to animate almost all community planning internationally.

2. THE SUPERBLOCK

Vehicle pedestrian separation.



SUNNYSIDE GARDENS N.Y. 1924.
by Clarence Stein and Henry Wright
- sufficiently large area to accommodate a precast of dwelling units without traffic penetration, usually with central common green open space.
- Lewis Mumford who lived in Sunnyside for 11 yrs observed "... though our means were modest, we contrived to live in an environment where space, sunlight, order, colour - these essential ingredients for either life or art, were constantly present."

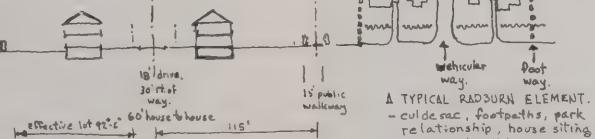
RADBURN

NEW JERSEY 1929
CLARENCE STEIN AND HENRY WRIGHT.

- a living environment "in which people could live peacefully with the automobile"
- based on residential superblocks; wherein there is complete separation of pedestrians and cars.
- in the centres of the superblocks are large open lands capped places for active + passive recreation.
- footpaths, on which dwellings face, give access to the open spaces + park footways; join block to block, underpassing the block boundary streets and leading to schools and community facilities.
- roads are hierarchically planned for specific purposes
 - service lanes or courts for access to residential property
 - secondary roads bound & define the superblocks + connect to main roads & highways
- the 3 Radburn neighbourhoods were intended to house a total population of about 25,000 on 2 square miles = 20 p/a.

- only 1 neighbourhood was completed, + the industrial area originally proposed was never built. Govt housing did not exist when Radburn was built.
- Radburn houses are "turned around" with living + sleeping rooms facing gardens + parks.
- "a town where roads and parks fit together like the fingers of your right and left hand."

- superblock area from 35 to 50 acres.
- internal parks 12% to 14% of total areas reduced street area by 25% from normal.
- first application of the neighbourhood unit; approx 7500 people
- the Radburn Association is a non-profit corporation to maintain community services, parks and recreation facilities + apply protective restrictions.

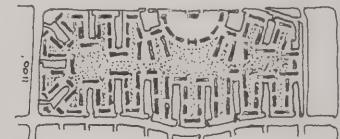


A TYPICAL RADBURN ELEMENT.
- cul-de-sacs, footpaths, park relationship, house siting
- 15' or 20' dwelling.

BALDWIN HILLS VILLAGE

LOS ANGELES 1941
CLARENCE STEIN & OTHERS.

- possibly the most complete execution of the Radburn idea.
- 80 acres = 7.8 ac/ha.
- garage courts instead of cul-de-sacs.
- approx 40 families per court.
- outdoor private patio gardens for each dwelling
- 25% open ceiling = 2750'



- 2 story terrace units throughout.
- Lewis Mumford said "I know of no other recent community that lends itself so fully to strict scrutiny."



7500 inhabitants

- the fusion of rural + urban was more dynamic in the other 2 greenbelt towns.



GREENBELT MARYLAND

1935 - 1940
Resettlement Administration to make work, to demonstrate garden city principles.

- to provide low income housing
- they were the first combination of the basic social/physical propositions of 1) the garden city 2) the Radburn concept 3) the neighbourhood unit.

THE AMERICAN PLANNING CONTRIBUTION

America has provided planning concepts of a social and physical nature that fundamentally shape town design. Some ideas are presented here in their original form both in an historical mood and for their continuing relevance, subject to changes responding to new circumstances.

The main motivation of new towns in America seems not so much the European preoccupation with the control of growth in large urban areas nor to give direction to urban growth, but rather to develop an improved urban environment - to create "garden cities" hopefully at a profit. Most American new towns are located far enough from the large conurbations to ensure reasonable land prices but near enough to take advantage of the growth of the urban centre, as for example, Reston near Washington, Columbia near Baltimore, Jonathan near Minneapolis, Park Forest near Chicago. Such "garden cities" require a combination of innovative physical planning and abundant public and social facilities to attract and serve the residents. Elaborate shopping centres, sports and community facilities are mandatory. Population sizes generally strike a 50,000 to 120,000 balance between the profitability of the enterprise within a reasonable time frame and the quality and diversity of commercial and social services. Thus, unlike other countries, neither metropolitan overspill policies nor regional growth and population distribution determines where and what is done by way of new towns. Most American communities do not strive for employment opportunity balances, so these towns are handsomely served by major highway connections to their neighbourhood job-providing parent cities. Public transportation is minimal as a rule.

The new town-in-town portion of the U.S. program has been termed a dismal failure with only one actually built.

A particular problem of new town development by private energies is posed by land acquisition. Columbia, Maryland illustrates what may result from difficulties posed when the developer has to adjust his master plan to by-pass properties he has been unable to acquire. The secrecy which must surround acquisition poses its own problems particularly in terms of public participation.

The American new town context is of particular interest to Canadian endeavours. Within it there is little mechanism for site selection or for confidentiality of land acquisition in the context of regional development strategy and little opportunity for development of new institutions. Questions about the role of the public and private sectors which may have different goals, different attitudes to large and long-term investment and different market perceptions constitute both the strength and weaknesses of the American new town endeavours.

An important administrative problem arises in American new towns after a few years when the inhabitants seek their own authority. This is a dangerous issue for the developers since they prefer to deal with established authority. Some developers prepare for this transition by instigating residents' associations as at Columbia, wherein their representation is gradually reduced from all developer/no residents in the early days to all residents/no developer at the end of the implementation

period. The developer's problem is to ensure sufficient control while he is still a major land owner and operator: the resident's problem is to have an effective voice in his own community. The balance between residents, developer and local authorities is probably the trickiest aspect of new town implementation in the American scene. Pierre Merlin offers observations on this dilemma:

"It is uncertain whether the convergent interests of the promoter and the local authority concerned correspond with those of the region as a whole on the one hand and the population of the new town on the other. This population chooses a mode of living that fits in with the changing pattern of the American Way of Life and is attracted by the prospect, unusual in residential areas of the U.S.A., of many and varied amenities. But it seems doubtful whether the promises of the advertising brochures can be fully implemented, whether or not the size of the new towns allows for such a high level of amenities, and whether the promoters have the resources to finance or even to attract such facilities. In some of the new towns financial difficulties have been so great that no attempt is made to conceal the necessity of cutting down the programme of amenities (a notable example of this is at Reston, where the promoter became bankrupt and the development was taken over by a large oil company)."

Perhaps the idea of Planned Unit Development (PUD) may be another in the stream of American contributions to planning ideas. The Urban Land Institute defines PUD as "a project, predominantly of housing, with the following elements: dwelling units grouped into clusters, allowing an appreciable amount of land for open space; much or all of its housing is in town houses or apartments or both; most economic and efficient use of land, making possible higher densities without overcrowding; where desired, part of the land is used for non-residential purposes such as shopping and employment centres." The common space and common community facilities which are a most important feature of PUD involve condominium ownership systems. These areas and facilities are maintained by home associations to which each dwelling unit pays dues or fees. Projects range from 50 to 1,000 acres. Some PUD regulating devices and legislation prescribe density bonuses to projects which, for example, provide 15% of the houses for low and moderate income families.

The significance of Planned Unit Development may be as an alternative to development by codification, substituting site plan or project approval as a permissive technique for the rigidity of regulatory planning. It is certainly an example of a fundamental difference between American private development initiated community building and European government initiated new towns. American development must meet the test of market acceptability rather than the benevolent despotism of state originated schemes.

Recently the United States has been increasingly emphasizing the development of new communities within a long range planning framework. Preceding this concern has been:

- the National Housing Act of 1954 which sought to encourage planning studies by federal financing of 2/3 the cost of state, regional, county or town planning.
- the 1968 Housing and Urban Development Act under which the U.S. Department of Housing and Urban Development (HUD) was authorized to issue loan guarantees to private developers of large new communities.
- the 1970 Housing and Urban Development Act renewed and expanded this commitment. Title VII doubled the loan guarantees and extended these guarantee programs to public agencies like New York State Urban Development Corporation. The provisions apply to new communities which are:
 - balanced metropolitan alternatives to urban sprawl
 - growth centre additions to existing smaller towns and cities
 - major "new towns in town" to help renew central cities
 - free standing viable communities to help equalize population growth

"From the point of view of the local authority, on the other hand, the new towns are not part of any general policy except, as at Reston, by chance. Resulting from this are a poor deployment of regional facilities, unregulated growth, the risk of open spaces being swallowed up, etc. Also, the methods of financing the new towns of the USA limit them - and their promoters do not disguise this fact - to the comparatively well-to-do, so that they do nothing towards solving the housing problems of the underprivileged."

columbia

Columbia - Significance to North Pickering

Outline Plan

- low density of development of 8 persons or 2.5 du per gross acre.

Community Structure

- a three-tiered system
 - neighbourhoods of approximately 4000 persons.
 - villages of approximately 10,000 to 12,000 persons.
 - overall town focused on a multi use town centre.
- housing clusters, neighbourhoods, villages and town seen as a system of overlapping community elements.
- incorporation of moderate income and non-profit housing, rare in American private development new towns.
- a great deal of attention to institutional development in the social fabric of the town.
- development of a dynamic and comprehensive residents association (Columbia Association) with social and recreational responsibilities and facilities:- note the relationship of the developer to CA.

Open Space

- optimization of existing natural features of the site.
- creation of man-made lake at town centre.
- a generous amount of open space equivalent to 23% of the site.

**CANADIAN
NEW TOWNS**

6

PART 6: CANADIAN NEW TOWNS

Canadian new town endeavours have generally been associated with natural resource development areas or new growth adjacent to large urban developments.

Resource development towns have usually been associated with a single industry:

- Kitimat, B.C. - aluminum
- Elliot Lake, Ontario - minerals of the Canadian shield, in particular, uranium
- Deep River, Ontario - atomic energy
- Arvida, Quebec - aluminum
- Innuvik, Northwest Territories - uranium

These towns are generally on remote sites held and controlled by the parent company. Their size is determined by company employment requirements. Because of their remoteness and single purposes nature, these towns experience very high turnovers of labour, perhaps up to 40% in a single year.

Most of the new towns associated with urban growth are located near major existing cities.

- near Toronto - Don Mills (northeast)
 - Bramalea (northwest)
 - Erin Mills & Meadowvale (west)
 - Mississauga City (west)
 - Malvern (northeast)
- near Ottawa - Kanata (west)
- near Edmonton - Mill Woods (southeast)

Most, with the exception of Mill Woods and Malvern, are conceived and developed by private enterprise.

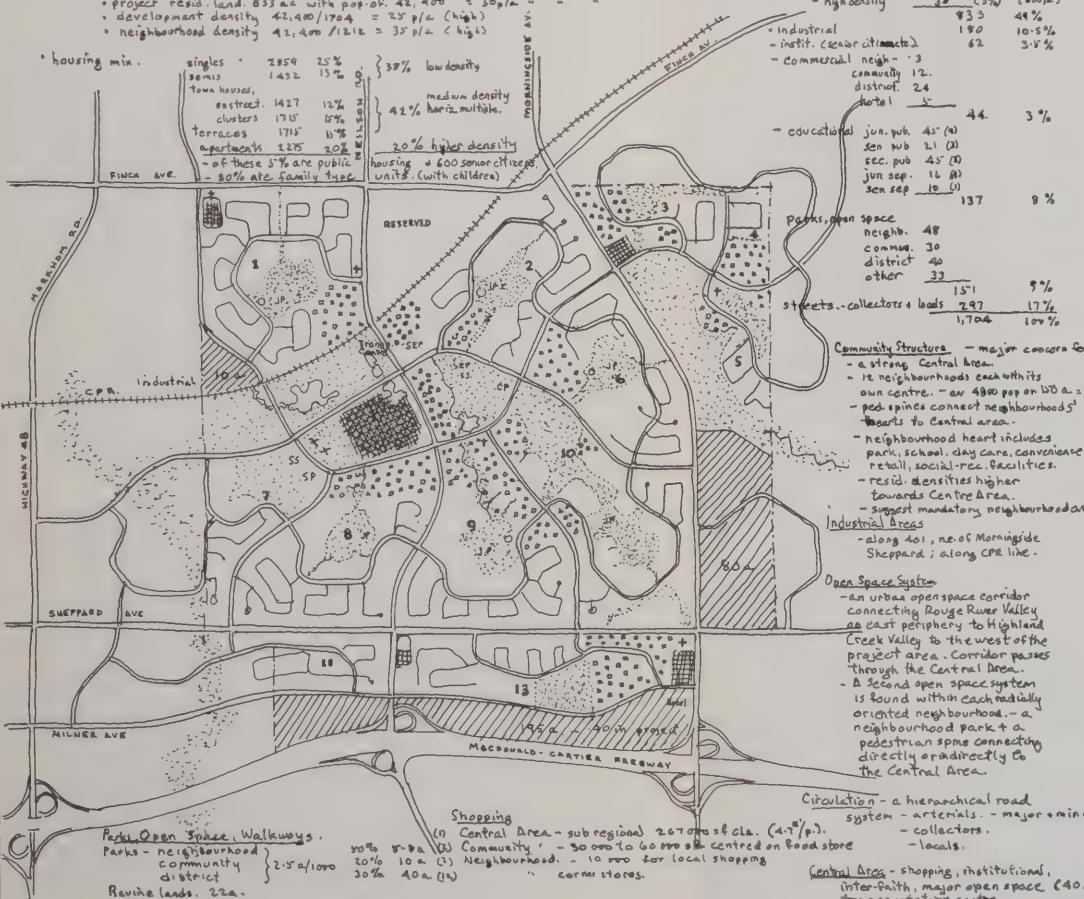
MALVERN (SCARBOROUGH)

- 12 miles n.e. of downtown Toronto
- size : project lands 1704 acres
- Density : owned resid. land 1,122 ac. with pop. of 57,000 = 50 p/a net resid. density
- project resid. land 833 ac. with pop. of 42,400 = 50 p/a
- development density 42,400 / 1704 = 25 p/c (high)
- neighborhood density 42,400 / 1212 = 35 p/c (high)

• housing mix.

singles	1859	25%
semis	1432	15%
town houses	1427	12%
clusters	1715	17%
terraces	1715	17%
apartments	2215	20%
- of these 5% are public - 30% are family type		

38% low density
42% medium density
20% high density
housing + 600 senior citizen units (with children)



CANADIAN NEW TOWNS

DON MILLS (NORTH YORK)

- 8 miles n.e. of downtown Toronto
- 2058 acres, 22 minutes to T.O. (Yonge Inter. Airport)
- built entirely by private enterprise (Don Mills Developments Ltd., then a subsidiary of the Angus Corporation).
- 31 blocks of land ranging from 2 acres to 60 acres purchased between 1964 and 1972.
- rolling terrain between east + west branches of the Don River
- an integrated community of residential, commercial and industrial development with an assessment ratio of 60% residential and 40% commercial.
- developer financed water, main trunk sewers and sewage disposal plant. Land sold for schools at less than cost
- rezoning negotiated a neighbourhood at a time as complete rezoning in conformity to the plan of possible.
- density - development density 25 mpa/2058 = 12%
- residential density 25mpa/1200 = 18.8 p/ac.
- net resid. density approx 22 p/ac.
- **Don Mills land use budget (acres)**

- residential	1,343	68%
- including schools		
- parkland		
- greenbelt, valley land	354	20%
(park + greenbelt total)	20%	
- park	57	
- industrial	296	14%
- commercial	75	8%

- **Housing** - singles + semis - 1022 ac.
- multiples. $\frac{1022}{1.05} = 966$
 $\frac{966}{112.7} = 8.6$.
- single family lots are generally 60' x 110'.
- row housing of good quality a departure that took in the Toronto area.
- design approval exercised by developer.
- **Community Structure**

 - based on elementary school centred neighbourhoods.
 - local streets looped or cul de saced.

- **Circulation**

 - arterials largely comprised of the existing rectangular grid of such streets as Leslie, Don Mills Rd., Eglinton, Lawrence.
 - no true collector streets; difficult to bus services required; disorienting.

- **Central Area**

 - 50 acres of shopping, office buildings.
 - part office, police, library, recreation
 - surrounded by multiple housing areas
 - with a large secondary school nearby

erin mills

Erin Mills - Significance to North Pickering

Regional Context

-a part of the metropolitan conurbation of Toronto and as such of significance regarding socio-economic context.

Community Structure

-a three-tiered system with major emphasis on the middle level of community structure:

- multi use community sub-centres serving up to 50,000 people with education, library, interfaith, child care, recreational and commercial facilities programmed by a joint committee with resident, public and developer participation.
- a neighbourhood centre program.

-a diversified mix of housing types.

-experimentation in housing solutions.

Environmental Concern

-detailed environmental and ecological analysis of sub-components of the plan reflected in complex studies of individual projects within the town form.

Design Concern

-design review and control of all buildings and siting.

Servicing

-growth and staging determined by servicing considerations.

Implementation

-constant developer negotiation and interface activity with parent municipality and provincial and other authorities.

Circulation

-incorporation of landscaped transportation corridor as a positive component of town forms.

-hierarchical circulation system based on a 1/2 mile interval modification of the original 1 1/4 mile rural grid plus finder streets and local streets.

mill woods

Mill Woods - Significance to North Pickering

Regional Context

- relationship to parent city of Edmonton and origin by public decision rather than private development is somewhat similar to North Pickering.

Outline Plan

- overall density of 21.6 persons per acre.

Community Structure

- planning concern to achieve an overlapping system of community structures.
- focus community on an intensive multi use core.
- a bi-level system of 5,000 person neighbourhood, 20,000 person communities, and the overall townform of 9 such communities, 3 of which are oriented towards a main transportation system. Housing clusters are basic to the neighbourhoods.

Circulation

- again use of the 1/2 mile grid for secondary roads and arterials.
- local bus service an important planning consideration.

Open Spaces and Recreation

- preservation of open space in Mill Creek ravine through the town.
- parks and schools combined at neighbourhood and community level. A hierarchy of open spaces from tot lots to town park.

Education

- learning seen as a dominant community pre-occupation.

**SUMMARY
of IDEAS of
SIGNIFICANCE to
NORTH PICKERING**

7

PART 7: SUMMARY OF IDEAS OF SIGNIFICANCE TO NORTH PICKERING

1. The genesis of new towns.
2. Planning and implementation considerations.
3. Regional context.
4. Planning concepts.
5. Community structure and social considerations.
6. Housing.
7. Town Centres.
8. Open Space.
9. Circulation.
10. Employment.
11. Shopping.
12. Educational and institutional provisions.
13. Staging and growth.

7.1. The Genesis of New Towns

7.1.1. Various purposes for building new towns are evident in international experience.

- to decentralize urban conurbations.
- to redirect growth and activity to new geographic areas in pursuit of national policy.
- to focus the energies and activities of a region.
- to improve the urban environment.
- to accommodate and direct metropolitan urban growth.
- to make a profit.

Many new towns are motivated by more than one of these objectives, but usually some particular purpose is paramount. With some degree of oversimplification, it might be said that British new towns originated primarily for purposes of decentralization and overspill and evolved towards more complex purposes of regional integration and development. With similar oversimplification, it could be argued that Scandinavian, Dutch and French new town activity has always accepted the role of the large city in

their society and economy and has attempted to accommodate and direct metropolitan growth rather than remove it by new town decentralization. Such town forms are almost a continuous part of the existing urban fabric. North Pickering seems to be this kind of new town activity, an extension of metropolitan form in accordance with thoughts about east-west axial balance. If so, the consequent requirements for urban and regional, social and physical integration may echo more of the purposes of Copenhagen's Albertslund, Stockholm's Skarholmen, and certainly Paris' Evry or Amsterdam's Bijlmermeer, than Britain's Milton Keynes. To this objective of course North Pickering adds a powerful motivation to improve the urban environment.

As the British Mark III generation of new towns have taken the form of sizeable expansions to large existing developments at, for example, Central Lancashire or Peterborough, they share more the philosophies of optimizing urban growth and add to them symbiotic activity in central city renewal.

As to the motive of making a profit, although Canadian endeavours at Don Mills or Erin Mills seem successful, the American new town mortality at Reston and the illnesses frequently encountered in other private enterprise towns makes this money-making objective dicey. If North Pickering has among its objectives not to burden the taxpayers, then a long look, quite beyond the scope or competence of this paper, at the American and Canadian experience of generation and implementation is surely in order.

7.1.2. Without exception, major new towns in Europe are of government origination. The Canadian and American activity to date has been originated, almost without exception, by private development - Columbia, Reston, Irving, Don Mills, Erin Mills, Arvida, Kitimat. North Pickering shares in the European tradition of government genesis. But just as Britain has recently determined upon a 50% private development input into new town implementation and the U.S. has turned to such quasi-public devices as the New York UDC, so it may be that North Pickering will become a blended town responsive to both public and private energies, motivations and prejudices, and sharing and shaped by the problems and possibilities of this typically Canadian uneasy but often effective partnership. Unfortunately, no lessons about the blended approach are available from the European scene where it doesn't exist, or from the American scene where public purpose and participation if any remains on paper.

7.2. Planning and Implementation Considerations

7.2.1. It may be because only the British had the foresight to entrust the courtship, conception, birth and rearing of new towns to development corporations, insulated from local pressures and accountability, that they have to show for it all an impressive family of new towns of unequalled extent and vigour. Within the limitations of this review, it is perhaps enough to indicate that the development corporation's approach or something like it would merit North Pickering's consideration.

7.2.2. Several observers of the successful UK new town operation have mentioned the continuing involvement of the planners or planning mechanism over the lengthy implementation period of the new town. This continuity passes from the desirable to the necessary as plans evolve from the rigid structured details of Mark I towns to the broad statement of strategies and the premium upon flexibility and open-ended options legitimately characterizing most recent planning for a rapidly changing scene. It is probably that North Pickering should address itself to this continuity and involvement problem. Locally it is thought-provoking to observe the constant dialogue and negotiations between the municipal, provincial and other authorities bearing upon, for example, Erin Mills, and the extent to which this day by day and year by year work shapes and reshapes the plan and its implementation.

7.2.3. Not too much can be gleaned from site visits, reports or articles on the nature of public participation in the planning process abroad, except to record that the desire for people to play a positive part in the decision making process is universal. It is possible that the UK new town development corporation is too insulated from such input and accountability just as the decision to hand over the completed new towns to the New Town Commission is a continuing manifestation of a kind of disenfranchisement of the citizenry. If there are few experiences and hence lessons available in this regard from the international planning scene, there are at least profound participation implications for the implementation process in North Pickering as well as for the planning process. One gets the impression that public participation in planning, say in Milton Keynes, is more a matter of debating through interim reports rather than of inviting the public to try their hand at planning at an embryonic stage.

7.2.4. Public decisions on implementation may result in situations such as are being currently experienced at Crawley, a largely completed Mark I new town of considerable charm and vitality. Recently the final two neighbourhoods of the designated pre-planned town-design area were proposed for implementation, whereupon the current citizens rose in opposition claiming the town was just fine exactly the way it was. The implications of this for North Pickering, or anywhere else, are of importance to public support of the growth process.

7.3. Regional Context

7.3.1. Perhaps the most important observation, from both the evolution of new town theory in the UK or from the continuing state of the are on the continent, involves a popular image of "new towns" as an isolated and better branded-new beginning somewhere else. It is significant that just when the British have largely abandoned the virginal vision of new towns splendidly protected by a sort of chlorophyl green chastity belt and have cozied up to the real world of existing towns and regional integration, the Canadian experience is preoccupied with green belts to isolate or identify something vaguely called communities.

Certainly, say the Europeans, cities need abundant open space and pleasant landscape, but as land is an expensive commodity their open space inventory should be shaped and disposed to accomplish human social and psychic needs which may or may not include isolation from their neighbouring and presumably less fortunate urban components. The trend seems to be more towards environmental sensitivity within and without the urban form and towards regional integration than towards separation by greenbelts.

- 7.3.2. Generally, the British new towns are commendably attempting to respect those smaller existing settlements both within the urban area and in the nearby surroundings. This objective North Pickering shares with them. The British attempts tend to be more by way of integration with rather than isolation from the new town structure.
- 7.3.3. The problems of the competing claims of agricultural preservation and urbanization trouble new towns everywhere, for by and large the characteristics of good agricultural land and lands appropriate for urbanization are very similar. Society's difficult decisions in these matters may change from time to time. The French seem best armed with a comprehensive national agricultural policy and analysis which at least makes it unnecessary to fight that important broad battle in a skirmish field of limited acreage. Agricultural activity at hand scale rather than machine scale in the form of garden allotments are present to a limited extent in many British and European new towns. Large scale agricultural use within the designated area is best planned in continuity with the existing surrounding farming environment.

Little has been done abroad to explore the potential of a dynamic relationship between town form and function and agricultural form and function. There is little work for example, on the potential of utilizing town waste for fertilization programs. One Canadian developer has done considerable thinking on what he calls Agro Housing Condominiums - where relatively large precincts are developed mutually on a serious farming-housing basis.

In no case did government abroad designate a new town area and subsequently debate whether it should be agricultural or urban; the designation was for urban purposes, possibly with a stated agricultural component. It could well be that land acquisition, as in North Pickering, close in to urbanized areas, may permit this basic decision to be reviewed from time to time as urbanization proceeds or is halted. Such agricultural-developmental review can be a salient determinant of flexible design concepts and a very defensible public action.

- 7.4. Planning Concepts
- 7.4.1. Planning concepts have moved far away from specific detailed structural, and hence inflexible, set design pieces towards more flexible, loosely fitted, open-ended strategies. Infrastructure effect is minimized to permit the unpredictable future to fulfill itself.

7.4.2. New towns everywhere are becoming larger with populations of 200,000 and more becoming the general rule. Many earlier new towns have had their population targets upped, often with difficult side effects in predetermined and inflexible town centres. There are many reasons for this enlargement, some having to do with such matters as the dynamics of attracting office and tertiary employment reluctant to locate in smaller configurations.

7.4.3. Most new towns have relatively high architectural and townscape standards. Design review and control is a continuing function in many. North Pickering might well begin to feel its way towards these matters of visual quality control, a proposition with considerable arguments both ways.

7.4.4. If anything, there is a tendency towards low rather than high density of town development. This reflects a forecast of the potential demands of an increasingly affluent, increasingly leisured, increasingly educated and increasingly mobile society. High density, highly structured town form concepts, of which Cumbernauld was the most dense, have been largely abandoned.

7.5. Community Structure and Social Considerations

7.5.1. There is almost a universal employment of a 3-tiered community structure. The smallest element is about 5,000 people, usually school-centred. This kind of unit, in former terminology a "neighbourhood" and in current terminology an "environmental area", has become rather broadened beyond its slightly parochial nature as encountered in earlier new towns. It, whatever its name, is seen more as a device to shelter residential areas from traffic pressures, to offer a safe and convenient journey for the child to elementary school and open space, and to accommodate those moderate social events and activities like child care and corner store neighbourly activities that come naturally.

The largest element is the total town form, usually centred about and expressed by a town centre. Here are found the larger scale social, commercial, recreational, institutional, etc. elements of the comprehensive town form.

About the small and large town form elements, there is a substantial agreement, but regarding intermediate elements there is a considerable uncertainty. The middle element is usually seen as a constellation of neighbourhoods to support and require convenience shopping, secondary education and such institutions as interfaith centres, etc. along with appropriate indoor and outdoor recreational provisions. This middle element in the towns examined vary from 10,000 to 50,000 residents with the majority opting for some 25,000 population. This range indicates some unresolved problem of the middle level.

The three tiered structure is seen not as separated autonomies, but particularly at the lower or neighbourhood level, as comprised of overlapping, not self-contained modules. Rather than

functioning as discreet social and physical cells, they are interacting components of a highly structured town form.

The development and encouragement of social action, whether one contemplated Harlow's 400 interest clubs and youth and art programs or the activities of the Columbia Association (CA) and its institutional development policy, are ample evidence that people and the things they do are what the towns old or new are all about.

7.6. Housing

7.6.1. Highly complex and detailed demographically responsive housing studies underly many of the British new towns. Housing policies are capable of clearer enunciation in the circumstance of purpose fulfilling UK towns. On the other hand, there is a deadening similarity, rigidity and lack of response to the housing market preferences inherent in the almost arrogant design assumptions of some of the more recent new towns. They house none of the very rich or the very poor. The rigid tie between in-town employment and in-town housing has not helped and is not to be found outside the UK. Noteworthy experiment in unit design and site planning is widely undertaken. It is heartening to note similar experiments in for example Erin Mills, Bramalea and Kanata here in Canada.

7.6.2. Nonprofit or middle system housing, so prevalent in the Scandinavian scene, is as absent in Britain as it is here. Possibly North Pickering should look carefully at the social and economic potential of this dimension of a comprehensive housing market.

7.6.3. Precincts of a social or physical nature involving house groupings of 50 to 100 dwellings are frequently employed.

7.6.4. Economic conditions may wildly distort housing availability - for example, there is not a single rental unit in Erin Mills new town at present. All dwellings of 8,000 current residents are of individual or condominium ownership.

7.6.5. Housing policies of new towns are reflections of their nations housing policies. None of the towns abroad have unique circumstances which cause them to develop housing propositions not found elsewhere around them.

7.7. Town Centres

7.7.1. In most new towns, a town centre is at least an important element. In the Hook studies and Cumbernauld, the centre is the dominant and only important focus of the town's life. There has been some disenchantment with the huge multi-decked multi-use mega-structures, a concern for high cost and inflexibility. Few if any towns have advocated much by way of decentralization of centre town functions to community nodes in the overall urban fabric, although Milton Keynes goes a considerable way in this direction.

Many early towns have suffered strangulation of the surrounded initial town centres when faced with expanded population targets.

7.7.2. The thorny question of whether to start the town centre early or late in the implementation sequence presents no clear answer from international experience. In favour of an early start are its symbolic significance, the encouragement of user habits and the retention of commercial and social energies that may be dissipated among sub-centres. In favour of a late start is the thought that centre town functions demand more mature energies and a larger market for support of large-scale shopping, institutional and social facilities.

It is difficult to make a moderate start and change the tempo later because the facilities of the moderate start are, by and large, inappropriate to final development. Perhaps recycling of space and function may be technically, operationally and economically feasible.

New towns which are government sponsored tend to undertake centre town earlier than private development towns which have different economic models. Similarly, small new towns may incorporate at least the beginnings of their town centres at the outset.

7.8. Open Space

7.8.1. Environmental sensitivity and respect for the natural qualities of the site have been present in UK new town design from the beginning. There seems to be more of a concern to adapt these qualities to urbanized man than to take a "nature unspoiled" attitude to every tree and stream and valley. On the evidence, there is a matching concern for urban ecology and environment rather than an over-protective attitude to nature. This attitude seems to extend for example, all the way back to early city forms like London's Green Park or Edinburgh's Princes Street and all the way forward to Milton Keynes' linear park concept.

7.8.2. Open space standards in the UK towns are very high compared to Canadian examples

7.9. Circulation

7.9.1. Most new towns inevitably strive for a balance, at least of choice, between public and private transportation. In some, like Runcorn, the geometry of the public system has fundamentally affected community form. Most, like Milton Keynes, see themselves, without sacrificing planning principles, as motor towns for an affluent society.

7.9.2. A hierarchy of roads characterizes to a greater or lesser degree all the town forms.

7.9.3. With the current pre-occupation of new town design with flexibility, choice and loose fit, the mobility achieved by an effective public & private transportation system becomes increasingly important.

- 7.9.4. Some form of grid with arterials at about 1/2 to 3/4 mile intervals seems to offer maximum flexibility with minimum infrastructure interferences. The grid loosely defines inter-related environmental areas and uses. Milton Keynes and Washington are examples of this approach quite at variance with Runcorn's structured hierarchy.
- 7.9.5. Pedestrian-vehicular separation is universally acclaimed and frequently achieved.
- 7.9.6. A pedestrian and cycle network is fundamental to most town forms which must in turn recognize the profound difference between pedestrian movement scale and vehicular movement scale.
- 7.9.7. Public transportation at the size of most new towns is satisfied by fairly orthodox bus systems brought to new levels of effectiveness, for example, separate rights-of-way rather than fixed track systems or advanced technologies.
- 7.9.8. All new towns (except perhaps Tapiola) are conveniently attached to the parent city or the region by high speed mass transit of some sort.

7.10. Employment

- 7.10.1. Most towns present job opportunity matching the labour force, and balanced between industrial (manufacturing, warehousing), service and office employment, the latter being the most difficult to attract in significant volume.
- 7.10.2. There is a considerable tendency to disperse the appropriate kind of light industry and job opportunities throughout the town form. This improves traffic circulation, and recognizes the home-work relationships required by the working female and generally foreshadowed by new work attitudes and life styles.

7.11. Shopping

- 7.11.1. Shopping is almost universally 3-tiered, its components being the corner store, convenience community shopping and sub-regional or regional DSTM comparison shopping. These each have fairly clear tributary areas, but the shopping pattern is volatile and in a constant state of considerable flux.

Improperly structured shopping patterns in town form abroad and at home have damaged or limited consumer convenience or seriously threatened the economic viability of the shopping function.

7.12. Educational and Institutional Provisions

- 7.12.1. Again, a 3-tiered system frequently is encountered with the elementary school at neighbourhood level, senior elementary and secondary school at community level, and post-secondary facilities on a town-wide basis.

- 7.12.2. The neighbourhood cell, in so far as it is school determined, is vulnerable to change as school systems change or the demography of pupil generation changes.
- 7.12.3. Wider community use of the school plant is everywhere desired or in evidence which affects its relationship to neighbourhood and community structure and to circulation systems public and private, vehicular and pedestrian.

7.13. Staging and Growth

- 7.13.1. Unlike earlier new towns, more recent thinking considers staging and growth as serious determinants of the planning concepts. Growth options and alternate growth strategies are an important component of new plans for such diverse town forms as Milton Keynes or Erin Mills.
- 7.13.2. There was general agreement that growth rates cannot be too rapid without social and physical problems. A rate of 4,000 to 5,000 persons per year seems to be currently acceptable.
- 7.13.3. Constraints imposed by the planning approval process, the market or housing policies have generally limited even the most effective town growth rates to 4,000 or 5,000 persons per year (See, for example, Crawley over a 20 year period or Erin Mills over a 2 year period).



A COMPARISON OF NEW TOWN DATA

NEW TOWN			POPULATION				LAND USE										BUDGET (acres)				HOUSING MIX				EMPLOYMENT		DENSITY (persons/acre)											
NAME	DATE designation	LOCATION	ORIGINALLY ON SITE	INFLATE & INCREASE	TOTAL	EXPANDED TARGET	TOTAL ACREAGE DEVELOPED	RESIDENTIAL ACREAGE/1000	% (developed)	INDUSTRIAL ACREAGE/1000	%	COMMERCIAL ACREAGE/1000	%	EDUCATIONAL ACREAGE/1000	%	INSTITUTIONAL ACREAGE/1000	%	OPEN SPACE COMMUNITY ACREAGE/1000	%	CIRCULATION ACREAGE/1000	%	OTHER	LOW DENSITY (single; semi)	MEDIUM DENSITY (row houses)	HIGH DENSITY (apartments)	EMPLOYMENT SUFFICIENCY	INDUSTRIAL JOBS/1000	TOTAL JOBS/1000	GROSS (designated)	DEVELOPED CHARS RESIDENTIAL	NET RESIDENTIAL							
HARLOW	1947	23 m. n.e. of London	4,500	85,500	90,000	130,000	6,345 ¹	1,700	19	33	300	3	6%	200	2	4	280	3	5	N.A.	1217	13	24	1200	N.A.	N.A.	80%	20%	45% 100	220 450	14	17	50					
CUMBERNAULD	1955	14 m. n.e. of Glasgow	3,500	66,500	70,000	70,000	4,150 2,783	849	12	30	395	6	14	110	2	4	167	2	6	N.A.	916	13	33	1367	288	4	10	58	50	180	17	26	85					
HOOK	1965 not built	40 m. w. of London		100,000			7,526 6,498	1,716	17	27	619	6	10	120	1	2	240	2-4	2	←	2890	29	45	1028	N.A.	495			100	13-2 155	50	58						
RUNCORN	1964	14 m. s.e. of Liverpool	30,000	60,000	90,000	100,000	6,707 ¹	1981	20	30	1980	20	30	89	1	1	432	4-3	6		1389	14	21		N.A.	164			100	440	13	55						
WASHINGTON	1964	E.M. seas Newcastle	20,000	60,000	80,000	80,000	5,325	1849	23	35	765 ¹	10	14	204	2-6	4	387	4-5	7	←	1368	17	26	318	4	6	449	N.A.	N.A.	15	16-7 124	35	43					
MILTON KEYNES	1967	45 m. to central London	40,000	210,000	250,000	250,000	21,900	9,570	39	44	1970	8	9	500	2	2	890	140	4	5	←	2860	12	13	4470	18	20	1480	N.A.	100	244. 510	115	11-5	24	39 804.			
COLUMBIA	1966	20 m. to Washington 17 m. to Baltimore		110,000	13,690	7400	54	3100	23	←				Included in resid.				3200	23	—			6040	44	1370	4	100	8 2-4	8	15	N.A.							
AUDUBON		Amherst N.Y.		28,500	2,310	35				13		3		2								10					286 N.A.	12	24	804.								
SHENANDOAH		Atlanta, Georgia		69,000	7278	33		13 25,000			6		7					26			98.					261 435	9	32	1004.									
NEWFIELDS		Dayton Ohio		42,675 ¹	5'000	60				10		2		6				23			9					86 240	8	14	504.									
FLOWER MOUND		Dallas Texas		57,000	6,448	52				10		6		5				22			6					112 310	10	16	604.									
RANCHO SAN DIEGO		California		57,600	5,415 ¹	30		5 80,000			3		8				40			10					232 425	10	30	1104.										
DON MILLS	1952	8 m. n.e. of central Toronto		25,000	2058	1343 ¹		65	286	1	14	75	4	See res. req.			See req. 14		354	in OTHER USES						12	12	18-6	22.									
ERIN MILLS	1969	8 m. west of metro Toronto		170,000	8730	3780	22	43	900	5	11	415	2-5	5	840	5	9	←	960	5-5	11	120	1775	10	21	1960	40	11,500	23	18,500	37	66	N.A.	20	27	45		
MALVERN	1953 ss.	14 m. n.e. central Toronto	19,600	42,400	57,000	57,000	1704	833	20	49	180	4	10-5	44	1	3	137	3	8	62	1-5	3-5	151	4	9	287	7	17	2859 1212	25 1376	4057	42	2275	20	100	25	35	50
MILL WOODS	1969	7 m. s.e. of central Edmonton		120,000	5766	2562	21	45	0	—	0	220	2	4	570	5	10	335	3	6	530	4-5	9	1549	13	26	11,2011	38	8900	31	9,200	31	30	21	46			

APPENDIX A

APPENDIX A

Abstractions from University of Cambridge, Department of Architecture Land Use and Built Form Studies of United Kingdom New Towns

A Comparative Assessment

Road Networks

In the early towns the road layout was planned in detail, without a clear hierarchical division and the pattern was centralised to serve core activities. More abstract patterns emerged in Glenrothes and Basildon, and in Cumbernauld and Livingston these became more geometrical and hierarchical, with a clearer separation of roads from the surrounding land uses. Increases in the size of the proposals and the importance given to mobility produced towns like Runcorn, whose form was influenced by motorways, cellular in structure - each cell serving city districts. This pattern of cells was often centred around a large service core, and reappeared in many Mark II towns. It may have proved more adaptable to existing landscape and activities than the strictly geometrical grid of Milton Keynes and South Hampshire. Because of the shape of the designated area most of the networks were non-directional and it is only in the later Mark III towns of Central Lancashire and South Hampshire or the early development in Wales of Newtown, that we observe the linear, single or multi-strand pattern which consists of spine roads linking a series of interdependent cores.

Residential

The residential land use accounts for most of the area designated within the New Town boundaries and in conjunction with the open space describes the major pattern in the towns. For this reason the distribution is influenced by the shape of the designated area. As previously stated the size of parcels can only be considered in the context of each town since this has partly been determined by the division of major roads and other land uses. The discussion will therefore concentrate on the grouping of parcels and overall distribution. In the small Mark I towns the residential areas were planned in detail and with the exception of Glenrothes and Basildon the towns were roughly circular in shape, with the parcels filling the designated area. The two exceptions demonstrate the beginnings of a cellular structure in the parcels and larger neighbourhoods corresponding to the changes in road structure. This was more evident in the Mark II towns such as Cumbernauld where the town was still considered as a single entity, but the residential units were large and separated into more isolated groups by open space, though the designated area is still fairly well covered.

Bigger towns (Telford) show hierarchy in these groupings, and the expanded towns (Northampton, Warrington and Peterborough) also attempted to adapt their concentric pattern to this cellular structure. By contrast, the neutral grid of Milton Keynes tended to give its residential units a common rectilinear pattern broken only by the lines of open space and transportation, and the regularity of these units was emphasised by an even dispersal of service centres.

Further changes appeared in Mark III towns with their linear disaggregated systems. Residential groups in Craigavon, Newtown and Central Lancashire were dispersed in separate blocks along the major routes and integrated closely into the surrounding countryside. The concept of filling the whole designated area with residential parcels is no longer followed. Central Lancashire also showed a marked hierarchy of parcels with four very large groups subdivided into smaller residential units. Another example of this is South Hampshire, but here, as in Milton Keynes, the pattern is highly abstracted.

Industry

In considering the industrial land use parcels it must first be noted that these do not account for all of the industrial jobs located in the New Towns but rather the principal industrial estates, as not all the towns show the small scale industrial developments scattered in the residential and commercial areas. Nor is it clear from the reports whether this is due to a deliberate policy of industrial concentration in large estates or simply a lack of provision in the plan, though it is clear that the expanded towns like Warrington have far greater quantities of this use. In general we can say that the distribution of industry in estates is a common feature throughout these plans and that the actual size of these estates (with the exception of Aycliffe and Corby, towns of a single industry) is fairly constant throughout despite the size of the town. Large towns, from the industrial point of view, appear as an association of smaller towns. The concept changes from one to two big estates for smaller towns to a scatter of these for bigger towns.

Observing the distribution of these estates we see the effects of Reith in early concentration of industry located sometimes on the boundary of towns (Stevenage), but more usually in close proximity to the commercial core (Cwmbran, Welwyn) in the town centre. Changes appeared in Cumbernauld which was large enough to incorporate several estates distributed on the perimeter in a triangle of roads. This pattern of industrial dispersal on the periphery and adjoining the main routes occurred in several later examples: Livingston, Washington, Runcorn. Other towns

had a different policy: Irvine gives them a central location; Peterborough has a single industrial estate for each major cell in its structure; Milton Keynes has an even dispersal of sites through the town and these are related to the major routes. The large areas of industry shown in Warrington and Northampton were partly caused by extra storage land, but perhaps indicate a more realistic approach to industrial sites which existed in a variety of shapes and sizes as the result of historical development. Finally the linear Mark III towns show a very dispersed pattern of industry along the main routes (Central Lancashire) or in a central spine (South Hampshire).

Commercial

As previously noted this group includes shops, offices and public buildings. These do not always occur in all parcels for their provision varied according to each town. Most include shops and public services, but several of the later ones have extensive office employment as a source of basic employment which cannot be directly linked to the population as a service industry. As with education, there is a varying provision for commercial facilities and although most provide major centres they often omit their areas which on our maps have been shown as symbols (♦). The hierarchy of facilities varies greatly, most towns adopting a centralised pattern of a single core and sub-centres (Hook, Cumbernauld). In Milton Keynes the hierarchy is clear with large central area, scattered district and local centres. There are also cases where the main centre dominates secondary facilities which take on a linear form, and here the concept of hierarchy has less meaning (Redditch and Northampton). Finally there are the examples which show an association of interdependent centres scattered throughout the town (Peterborough, Central Lancashire, Newtown) located either in the residential areas or along the main routes.

Education

The location of education was unevenly recorded. There is no data for Central Lancashire, and Northampton only provides secondary schools. As education is closely related to residential use it has adopted a similar distribution, and although the density of schools in all plans is fairly constant, the differences between the plans show the importance attached to this aspect. The earliest towns and the later development of Milton Keynes which had a detailed provision for schools, are an example of this concern (and in this town we observe the effects of a new policy to locate several secondary schools on a single campus).

In more recent towns (Central Lancashire, South Hampshire), however, education forms a later stage in the planning process and is not covered in any detail. The difference in size of educational parcels is due to the inclusion of primary, secondary and further education parcels on the same maps, and school playing fields, if recorded, were also included; when the actual size of the parcel was not shown its location took the form of a symbol (◆). Again the historical development of the expanded towns shows a diversity not present in most other layouts.

Open Space

This category includes all open space (public or communal) as well as vacant and agricultural land. There is a variety in the amount of open space provided in the plans, as a proportion of the area of the town. Some towns allotted a larger amount of space around the town than was needed in the first development and this extra space was often intended for expansion. However, in East Kilbride and Craigavon and again in Newtown, there was a change in policy towards the countryside, where the designated area was deliberately larger than in most other towns owing to the need to preserve the surrounding countryside for tourism and maintain its amenity value by protecting it from development. Apart from this, the variation in amount of open space within the towns could be accounted for in the different policy of residential density, both at a local and a town level. Compact structures (Hook), with limited private open space, tended to allocate greater amounts of public open space than the dispersed towns (Milton Keynes), which aimed at lower residential densities. It is also true that in small towns, which are closely surrounded by countryside, there is less need to provide as much open space in the fabric of the town as there is in the large cities and conurbations.

With regard to the location of open space we can observe two closely related characteristics: on the one hand a concentration or dispersal of small parcels throughout the residential areas and on the other the location of larger parks and tracts of open country situated either on the town edge or separating its major districts. In some cases as in Milton Keynes these two concepts are combined into linear strips of open space penetrating the town.

In general the early towns were compact with small parks inside the town and a belt of open country around. Harlow, Stevenage and Glenrothes had a strip through the centre. In Cumbernauld 2 and more clearly Telford we see the disaggregation of the residential areas and the introduction of large areas of open space, and in Milton Keynes and later in South Hampshire these parks were abstracted into rectilinear strips of open space. Peterborough has a single green belt linking the new and old

development in a semi-linear manner but this idea is only fully developed in the subregions of Central Lancashire and most of all in Newtown in Mid Wales where open space runs through the whole plan and forms a very important part of the design.

Figure 1: The main planning criteria of the New Towns proposals.



APPENDIX B

APPENDIX B. Bibliography

From the extensive inventory of new town literature the following greatly reduced list was of particular value in preparing this study.

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